All issues available have
been filmed.
Unfortunately, any
scattered missing issues
are no longer available.

982

GSA/ADTS/C-82/1

PB82-904001

JUL 1 1982
U. S. GOVT. PUBS.
DEPOSITORY

OFFICE OF SOFTWARE DEVELOPMENT

Federal software exchange catalog

January 1982

General Services Administration
Automated Data and Telecommunications Service

U.S. Department of Commerce
National Technical Information Service
NTIS

GS 12.14:

TECHNICAL ASSISTANCE TO IMPLEMENT THE SOFTWARE FROM THIS CATALOG ON YOUR SYSTEM IS AVAILABLE:

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8. Denver, CO	FTS (303) 234-2466
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AND. . . .

GSA ALSO NOW OFFERS FSEC TECHNICAL ASSISTANCE . . .

GSA offers a reimbursable service to Federal Agencies which includes:

- Establishment of internal software inventories.
- Aid in setting up internal units for the purpose of coordinating intrasoftware exchange, management information, and standardization.
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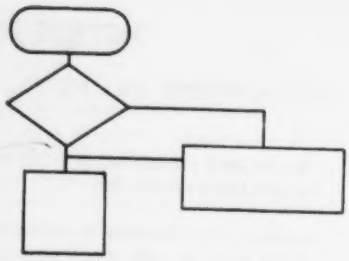
This service is available for application throughout an agency, including regional and area offices. GSA will coordinate the entire effort or assist the agency in any part of the program.

For information on how your agency can take advantage of this service contact: Helen B. McEwan, Director, Software Exchange Program, GSA(CF), 2 Skyline Plaza (11th Floor), 5203 Leesburg Pike, Falls Church, VA 22041; or call (703) 756-6150.



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U.S. Department of Commerce
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NTIS

NOTICE TO SUBSCRIBERS

SUBSCRIBERS WILL NOTICE A CHANGE IN THE FORMAT OF THIS CATALOG.

The software inventories of NTIS and the Federal Software Exchange have been merged effective this year.

Please note the following in connection with this merger/ conversion:

- We now list only those programs for which we have the source code and documentation in our inventory. Because of this, there are fewer abstracts in this Catalog. Please call if you are looking for a program that may have appeared in an older issue. We will research the program's availability for you.
- A new section on *Software Tools* has been added. This section highlights Software Tools which are being supported by the Federal Software Testing Center, Office of Software Development, General Services Administration.

We believe the changes made will prove to be of definite benefit to our subscribers. The software listed is of higher quality and the turnaround time in filling orders for software or documentation should be greatly reduced.

ASSISTANCE TO SUBSCRIBERS

For assistance in ordering documentation and software or for submitting documentation and software, please write or call:

Federal Software Exchange Center (FSEC)
NTIS Computer Products
5285 Port Royal Road
Springfield, VA 22161

(703) 487-4848
FTS 737-4848

Federal Agencies are reminded that Federal Property Management Regulation 101-36.2607 requires them to continually review software within the agency to identify common use programs or systems. Abstracts of this software are to be submitted to the Federal Software Exchange Center (FSEC), 5285 Port Royal Road, Springfield, VA 22161 (telephone 703—487-4848 or FTS—737-4848) on Standard Form 185. Federal Information Processing Standard Software Summary. Abstracts received after the cutoff date for this issue, will be included in the next issue of the Federal Software Exchange Catalog.

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SAMPLE ITEM

Title of Computer Software: ICDA-8 Abbreviations Tape, List Program and Update Program
Originating Agency: Bureau of Health Services Research, Rockville, Maryland

ABSTRACT ENTRY

PB-239 729/7CP ..... NTIS Order Number —**USE THIS NUMBER TO ORDER PRODUCTS OR REQUEST INFORMATION**

ICDA-8 Abbreviations Tape, List Program and Update Program. ..... Title

Software. The users manual describes the need for abbreviations for the definitions of each disease, condition, or procedure code contained in the 8th Revision of the International Classification of Disease, Adapted (ICDA-8). An approach to meeting this need through provision of a list stored on magnetic tape, and tape format and other user information (including update and list programs stored on the same tape) is included. The intended users of the list are hospital discharge abstract services, although other groups dealing with ICDA-8 codes may also have applications for these abbreviated definitions. **For related technical report, see PB-239 730/5CP.** ..... Technical Abstract

Keywords: *Software, *Medical records, *Diseases, Classifications, Manuals, Definitions, Magnetic tapes, Data tapes, *Hospital discharge data. ..... Keywords —**USED FOR INDEXING AND SEARCHING**

Availability: NTIS, CP T03, 1 reel mag tape. Specify tape recording mode desired: 9 track, 800 or 1600bpi, odd parity, Ebcdic; or 7 track, 556 or 800bpi, odd or even parity, BCD. ..... Statement of Availability

INDEX ENTRIES

SUBJECT INDEX

Keyword ..... **DISEASES**
Title ..... ICDA-8 Abbreviations Tape, List Program and Update Program.
NTIS Order Number PB-239 729/7CP 4

AGENCY INDEX

Generating Agency ..... **BUREAU OF HEALTH SERVICES RESEARCH, ROCKVILLE, MD.**
Agency Number BHSR-75/51
Title ..... ICDA-8 Abbreviations Tape, List Program and Update Program.
Computer Product Number ..... *(DHEW/DF-74/001)*
NTIS Order Number PB-239 729/7CP 4

Subject Category Location

NUMBER INDEX

NTIS Order or Originating Agency Number **PB-239 729/7CP**
Title ..... ICDA-8 Abbreviations Tape, List Program and Update Program.
NTIS Order Number ..... PB-239 729/7CP 4 CP T03 ..... NTIS price codes

HOW TO USE THIS DIRECTORY

A computer program† can be located in two ways: It can be found in the Abstract Section under the appropriate subject category; or it can be found by using the indexes in the back of the *Directory*. The following indexes are available:

Agency Index: Lists the originating agencies (or their contractors) for these programs. Entries are sequenced alphabetically by agency, including applicable subunit, then by NTIS order number or originating agency number.

Number Index: Lists all programs in alphanumeric order by NTIS order number or originating agency number.

Subject Index: Lists all programs by their major subject concepts. Items are arranged in alphanumeric order under each subject term.

Hardware Index: Lists only those programs for which hardware configuration was identified. Items are arranged in alphanumeric order under each hardware type.

Language Index: Lists only those programs for which the source language was identified. Items are arranged in alphanumeric order under each language.

A typical sample entry is graphically detailed on the facing page; the various parts of an abstract entry and its associated major index entries are labeled. Note that this particular sample has no hardware or source language information. Thus, there is no entry in either the hardware or the language index.

† All references to (computer) programs include related technical reports, where applicable.

PRICING

Costs of programs available from FSEC are given in price codes contained in the availability statement in each citation; CP stands for magnetic tape, PC for paper copy, and MF for microfiche. NTIS issues new price-code tables twice yearly; they are available on request. Price codes, rather than prices, are indicated so that you will always be able to determine the current price. The following price schedules list prices in effect at the time this catalog was published.

PRICE SCHEDULES

January 1, 1982

STANDARD PRICE SCHEDULE

Price Code	Paper Range	North American Continent
A01		$ 4.00
A02	001-025	6.00
A03	026-050	7.50
A04	051-075	9.00
A05	076-100	10.50
A06	101-125	12.00
A07	126-150	13.50
A08	151-175	15.00
A09	176-200	16.50
A10	201-225	18.00
A11	226-250	19.50
A12	251-275	21.00
A13	276-300	22.50
A14	301-325	24.00
A15	326-350	25.50
A16	351-375	27.00
A17	376-400	28.50
A18	401-425	30.00
A19	426-450	31.50
A20	451-475	33.00
A21	476-500	34.50
A22	501-525	36.00
A23	526-550	37.50
A24	551-575	39.00
A25	576-600	40.50
A99	601-up	—†

† Add $1.50 for each additional 25-page increment from 601 pages up.

MAGNETIC TAPE PRICE SCHEDULE

Code	North American Continent
T01	$ 110
T02	125
T03	210
T04	300
T05	360
T06	420
T07	480
T08	540
T09	600
T10	660
T11	720
T12	780
T13	840
T14	900
T15	960
T16	1020
T17	1080
T18	1140
T19	1200

T99—Contact NTIS for Price Quote

HOW TO ORDER

To order a magnetic tape or document from FSEC, fill out the order form bound in the back of this publication (or a copy) and send it to FSEC, 5285 Port Royal Road, Springfield, Virginia 22161. Be sure to include the NTIS order number (printed at the top upper right of each entry in the abstract section). Please specify tape recording mode on the order form. You can pay by check, various charge cards, or NTIS Deposit Account. If payment is by check, please make it payable to NTIS; if by American Express, Mastercharge, or Visa credit card account, please give your card number, expiration date, and sign with your authorized signature. If you would like to open an NTIS Deposit Account, please call (703) 487-4770 or write to NTIS at the above address.

A signed sales agreement must accompany orders for computer programs. Copies of the applicable sales agreement are available on request. For assistance in ordering documentation and software, please write or call:

Federal Software Exchange Center (FSEC)
NTIS Computer Products
5285 Port Royal Road
Springfield, Virginia 22161

(703) 487-4848
FTS 737-4848

SOFTWARE TOOLS

This new section in the Federal Software Exchange Catalog contains software tools that have been developed or acquired by the Office of Software Development's Federal Software Testing Center (FSTC). Software tools are specially designed computer programs which are used to increase programmer productivity. Software tools can accomplish tasks which are repetitive, boring and prone to error when performed by programmers -such as comparing files produced before and after a program is modified or determining the percent of the code in a source program that has been executed. The use of software tools results in more thoroughly tested software and more easily maintainable software, thereby reducing the overall cost of the software development and maintenance process.

These tools have been tested by the Center prior to release. The Center will provide periodic maintenance and enhancement to these tools. There will be a formal mechanism for requesting enhancements to the tools. As program fixes are developed and tested, they will be made available to all those who have purchased the product(s).

The FSTC will provide several levels of support in the implementation of these tools. The highest level of support will be provided at the requestor's computer center to install the tools, work with computer center personnel to establish procedures by which the tools will be used (integrate them into the software development and testing cycle), and provide training for a designated number of personnel in the proper use of the tools. The FSTC will perform any or all of the tasks described above on a reimbursible basis.

If the requestor desires to perform the implementation using his own personnel, the FSTC staff will be available for telephone consultation during the tool implementation phase. (There will be no charge for a limited amount of consultation.)

The FSTC is offering this service in an effort to make Agencies aware of the latest technology in the area of software development/testing. While the private sector has begun to use software tools in the software development/testing process, software tools have not caught on as rapidly in the Federal Government. It can be time consuming and expensive to establish an inhouse team to identify, acquire, install and integrate software tools into the software development and testing process. The FSTC can provide help in this area, since they have already acquired several software tools and also identified software tools available from the private sector. The FSTC can help your managers by providing the necessary insight and experience to set up a realistic software tool environment using a minimum of your valuable resources.

The FSTC is operated under the ADP Fund and as such all work performed by the Center is on a reimbursible basis. The price of the tools shown is the annual lease price and includes the tool, documentation and a limited amount of support during installation of the tool.

For further information, you should contact the Federal Software Testing Center directly:

Director
Federal Software Testing Center
Office of Software Development
5203 Leesburg Pike, Suite 1100
Falls Church, Va. 22041

703/756-6153, FTS 756-6153

SOFTWARE TOOLS

PB82-167263

The COBOL TCM (Test Coverage Monitor)

SOFTWARE. The COBOL TCM is an invaluable aid in determining the degree to which a program has been tested. The TCM accepts as input a working COBOL program based on COBOL 68 or COBOL 74. It instruments the COBOL program through the addition of the source code necessary to measure the percent of the code executed in the COBOL. When the instrumented program executes, counters are used to save information regarding what parts of the program have been executed. When the program terminates, a report is produced by the instrumented code in the program. This report identifies the frequency of the execution of each paragraph, and all conditionally executed code. The code that was not executed is identified enabling the programmer to find areas of the program that will require additional testing. Most programmers feel a program is tested when as little as 30% of the code has been exercised. The TCM can help identify the exact percentage of the program that has been executed and pinpoint the areas that need the programmers attention.

The TCM can also be used for other difficult tasks such as determining whether adequate test data is available for program conversion purposes. When a program is converted to another system, an adequate amount of test data must be present in order to ensure that the converted program is working properly. The TCM can easily tell you if you have adequate test data. If you are producing additional test data it can tell you when you have enough.

When improving the quality or efficiency of software the TCM can be useful in identifying the parts of the COBOL program which are executed most frequently. The frequency counts provided by the TCM for the source code will quickly enable a programmer to find the areas of the program which need his/her attention.

The COBOL TCM is available for both COBOL 68 and COBOL 74 environments.

SOFTWARE DESCRIPTION: There are two versions of the COBOL TCM; one written in the High-Intermediate level of COBOL 68 and the other written in the High-Intermediate level of COBOL 74. The TCM requires approximately 35K bytes of memory to execute. The instrumented program will require up to 50% more memory and take around 15% more time to execute. The instrumented program produced by the TCM is stand-alone in the sense that it needs no additional support in terms of work files or other software support in order to execute. It does produce the report described above. This product is available on most current generation equipment and can be tailored for systems for which it is not available for a reasonable fee by the Federal Software Testing Center.

AVAILABILITY: Magnetic Tape. Source tape is in ASCII or EBCDIC character set with a density of 800 or 1600 BPI recorded on nine-track one-half inch tape. Call NTIS Computer Products if you have questions regarding ordering the product. Call the Federal Software Testing Center if you have questions about the installation or use of the product. Price: $1,800 per year - includes source code, documentation and limited help from the FSTC during implementation.

PB82-167271

The COBOL FRMT (Source Code Formatter)

SOFTWARE: The COBOL FRMT is a program that will accept a working COBOL source program and produce a new source program that has been formatted according to the FRMT standards. COBOL programs are often hard to debug and maintain due to a lack of readability. This is especially true when there may be several different coding styles found in the same program. This can happen for several reasons; (1) the program was coded poorly to begin with, (2) different programmers wrote different parts of the program, each using their own coding style, and (3) the program has been maintained by a group of programmers using other coding techniques.

The benefits of using a source code formatter include having a library of programs that "look the same" due to consistent indentation and placement of specific clauses and statements. A code formatter can be especially useful in an interactive programming environment where programmers modify programs using interactive terminals. There is a tendency to not follow an organization's program coding standards and in the long run it may be cheaper not to have an interactive programmer worrying with coding techniques when working with a program. A source code formatter can be used periodically to clean up the format of the code and free the programmer of this task.

The Data Division is reformatted such that there is a blank line before each File Description entry and 01 record description entry. Level numbers subordinate to the 01 are renumbered by 2 (e.g. 03, 05, 07) for each higher level number. Level numbers subordinate to an 01 are indented four spaces to the right for each higher level number in the record in order to visually establish the data hierarchy of each record description. The PICTURE clause is positioned in column 40 and the VALUE clause follows if it will fit on the same line - otherwise it will be placed on the next source line for readability purposes.

The Procedure Division is formatted so that there is only one statement per source line to simplify the reading of the source code. All IF statements and other conditional statements are indented to reveal the hierarchy of execution of the Procedure Division source code.

SOFTWARE DESCRIPTION: There are two versions of the COBOL FRMT; one written in the High-Intermediate level of COBOL 68 (X3.23-1968 - FIPS PUB 21) and the other written in High-Intermediate level of COBOL 74 (X3.23-1974 - FIPS PUB 21-1). The FRMT requires 35K of memory to execute and requires one sequential work file. This product is available on most current generation equipment and can be tailored for systems for which it is not available for a reasonable fee by the Federal Software Testing Center.

AVAILABILITY: Magnetic Tape. Source tape is in ASCII or EBCDIC character set with a density of 800 or 1600 BPI recorded on nine-track one-half inch tape. Call NTIS Computer Products if you have any questions regarding ordering the product. Call the Federal Software Testing Center if you have questions about the installation or use of the product. Price: $1,800 per year - includes source code, documentation and limited help from the FSTC during implementation.

PB82-167289

The COBOL FCOMP (File Compare Utility)

SOFTWARE: The COBOL FCOMP (File Compare Utility) is written in COBOL and is designed to be used in comparing the contents of two files. It will identify the portions of records that do not match exactly within files containing the same number of records. It will also compare files with a different number of records and identify the differences between the two. This includes records added, deleted and changed.

FCOMP can be used to compare data files produced by COBOL programs. There are options to mask out certain parts of a record which you do not want compared. FCOMP is character oriented, it can deal with non-character data but provides less information about the content of the non-character data.

Determining the difference between two copies of the same program has always been a difficult task. FCOMP can be used to compare two different versions of a source program and identify the differences between the two programs. Before today's interactive systems, programmers kept their programs in the form of card decks. It was relatively easy to annotate changes to the program when cards were changed or added. Some programmers even used a felt tip marker to indicate these new or changed cards. When mass storage became more available and used to store source programs, updates were generally made by submitting card image changes to the programs. The deck of update cards represented the most recent revision to a program. Today as more and more program development and maintenance is performed using interactive terminals, there is virtually no audit trail as to what a programmer has done when updating a program. FCOMP can be extremely useful when trying to establish what has changed between two versions of a source program.

The function of comparing two files, be them source programs or data, is a tedious, time consuming task. When performed by programmers the task can be prone to error. Therefore it makes sense to let the computer do this type of work due to its speed and accuracy. FCOMP produces a report that identifies records which do not compare due to changes in the data of the record, and records which are added to or deleted from either of the two files.

SOFTWARE DESCRIPTION: There are two versions of the COBOL FCOMP; one written in COBOL 68 (X3.23-1968 - FIPS PUB 21) and the other written in COBOL 74 (X3.23-1974—FIPS PUB 21-1). The FCOMP requires 60K of memory to execute, requires two input files which are to be compared and produces a report describing the results of the compare operation. This product is available on most current generation equipment and can be tailored for systems for which it is not available for a reasonable fee by the Federal Software Testing Center.

AVAILABILITY: Magnetic Tape. Source tape is in ASCII or EBCDIC character set with a density of 800 or 1600 BPI recorded on nine-track one-half inch tape. Call NTIS Computer Products if you have questions regarding ordering the product. Call the Federal Software Testing Center if you have questions about the installation or use of the product. Price: $1,800 per year - includes source code, documentation and limited help from the FSTC during implementation.

PB82-167297

The COBOL SXRF Super Cross-Reference Documentation Tool

SOFTWARE: The COBOL SXRF is a COBOL source program documentation tool that provides a comprehensive cross reference of user defined names and literals in a COBOL program. The output from SXRF includes two reports, a cross reference listing and a source listing. The source listing report contains:

- A source listing of the program with reference line numbers associated with each source image.
- A table showing which COBOL verbs were present in the program giving the number of times each verb occured and the percent of frequency of each verb.
- The number of executable statements in the Procedure Division.
- The number of paragraphs and sections in the Procedure Division.

The cross reference report provides the following:

- A cross reference of each user defined word and literal in the program. Along with the line number of the definition and each reference, the line of source code in which the reference or definition takes place is also presented. This permits the programmer to know the precise definition and the types of references made to any user defined word or literal. For example when learning about a particular data name it is nice to know where the data name is used as a receiving, sending, and comparison item.
- The type of definition for each name or literal e.g. FD, 01, Paragraph name,etc.
- The type of reference for each name or literal e.g. operand in an ADD statement, etc.
- The name of the record or procedure name under which the definition or reference occurs.

The SXRF output can be used to help introduce a programmer to a strange program and provide enough information to allow the programmer to begin to immediately understand the program.

SOFTWARE DESCRIPTION: There are two versions of COBOL SXRF; one written in the High-Intermediate level of COBOL 68 (X3.23-1968 - FIPS PUB 21) and the other written in High-Intermediate level of COBOL 74 (X3.23-1974 - FIPS PUB 21-1). The SXRF requires 30K of memory to execute, uses the COBOL sort, requires one input file and a sequential work file, and produces two reports. The reserved word table may have to be modified to include non-ANSI reserved words. This product is available on most current generation equipment and can be tailored for systems for which it is not available for a reasonable fee by the Federal Software Testing Center.

AVAILABILITY: Magnetic Tape. Source tape is in ASCII or EBCDIC character set with a density of 800 or 1600 BPI recorded on nine-track one-half inch tape. Call NTIS Computer Products if you have questions regarding ordering the product. Call the Federal Software Testing Center if you have questions about the installation or use of the product. Price: $1,800 per year - includes source code, documentation and limited help from the FSTC during implementation.

PB82-167305

The FORTRAN 77 ANALYZER

SOFTWARE: The FORTRAN 77 ANALYZER evaluates the structure of a FORTRAN program both statically, based on the source code and dynamically during execution of the compiled program. The reports produced by the system are as follows:

- Statistical summary of statement and segment information at both the routine and program level.
- Program call tree giving hierarchical display of inter-module references.
- Segment utilization at the program level.
- Assertion utilization at the program level.
- Source program listing annotated with segment and assertion execution information.

- Distribution of statements by type with static frequencies at both the routine and program levels.
- Distribution of statements by type with dynamic execution frequencies at both the routine and program levels.
- Invocation frequency of all routines contained within the program.
- Percent of segment execution coverage.
- Percent of statement execution coverage.

The FORTRAN Analyzer is made up of two programs. The pre-processor accepts as input a working FORTRAN 77 source program and parameters defining the amount of analysis required. The output from the pre-processor includes the static analysis reports described above and a new copy of the input program. The new program contains instrumentation code which, when the program executes, keeps track of the dynamic execution of the program. There are several work files produced by the new program which are input to the post-processor which are used to produce the dynamic execution reports described above.

SOFTWARE DESCRIPTION: The FORTRAN 77 ANALYZER is written using the full set of FORTRAN 77 (X3.9-1978 - FIPS PUB 69). It requires 64K bytes of memory. It has several sequential work files, accepts as input a source program written in FORTRAN 77 and outputs a program which contains measurement code which produces statistics based on the execution of the program.

AVAILABILITY: Magnetic Tape. Source tape is in ASCII or EBCDIC character set with a density of 800 or 1600 BPI recorded on nine-track one-half inch tape. Call NTIS Computer Products if you have questions regarding ordering the product. Call the Federal Software Testing Center if you have questions about the installation or use of the product. Price: $2,400 per year - includes source code, documentation and limited help from the FSTC during implementation.

JOVIAL SECTION

The Federal Software Exchange Center (FSEC) has been given the responsibility to inventory and distribute Jovial compilers, support tools, and associated software for the U. S. Air Force.

Except where otherwise indicated, these compilers and tools have been validated, conform to Military Standards, as appropriate, and are supported by the Jovial Language Control Facility.

The users of the Jovial compilers have formed a users group called Jovial/Ada Users Group (JUG). JUG membership is open to all Federal users, government contractors, government employees, and others interested in the use of the Jovial computer programming language.

If you would like more information about JUG membership or Jovial software made available through FSEC since publication of this catalog, contact:

Jovial Language Control Facility
Ms. Pat Knoop
ASD/ADOL
Wright-Patterson AFB, OH 45433

(513) 255-4472

The FSEC currently has the following Jovial compilers and support tools in the FSEC inventory:

Jovial J73/I, Decsystem-10 Version	PB82-135070
Jovial J73/I, IBM Version	PB82-135005
Jovial J73, Decsystem-10 Version	PB82-135021
MIL-STD 1750 Assembler (ALAP)/Linker (LINKS), IBM Version	PB81-183048
MIL-STD 1750 Assembler (ALAP)/Linker (LINKS), Decsystem-10 Version	PB81-183162
MIL-STD 1750 Interpretive Computer Simulator, Decsystem-10 Version	PB81-183089
AN/AYK-15A (MIL-STD 1750) Interpretive Computer Simulator, IBM Version	PB81-183121

For additional information on these compilers and programs, please write or call:

Federal Software Exchange Center (FSEC)
NTIS Computer Products
5285 Port Royal Road
Springfield, Virginia 22161

(703) 487-4848
FTS 737-4848

FSEC HIGHLIGHTS

SOFTWARE OF SPECIAL SIGNIFICANCE

• Graphics Compatibility System 3-D (GCS)	AD-A101 336
GCS is a FORTRAN-based computer graphics system designed for interactive use on a wide variety of computer graphics terminals.	$1,500
• UNAMAP—Air Pollution Modeling	PB81-164600
The UNAMAP (Version 4) User's Network for Applied Modeling for Air Pollution program tape contains 21 air quality simulation models.	$840
• CAM—Cartographic Automated Mapping	PB-270 303
The Cartographic Automated Mapping (CAM) program performs a variety of functions useful in cartography. It can plot these functions in up to 18 map projections.	$360
• COBOL Realignment System	PB81-100406
The COBOL Realignment System realigns a COBOL program into a more readable and standard form.	$480
• Integrated Library System (ILS)	PB82-114950
Designed to automate most library functions including the Master Bibliographic File and Bibliographic Control, Circulation Subsystem, Public Catalog Access Subsystem, Serials Check In and Administrative Subsystem.	$2,700
• COBOL Compiler Validation Systems—1974	PB80-219892
Used to validate COBOL compilers and to ensure their conformance to the Federal Standard as prescribed in FIPSPUB 21.1.	$840
• NBS Minimal Basic Test Programs (Version 2)	PB81-128399
This set of programs was developed by NBS for testing conformance of implementation of the BASIC computer language to ANSI-FORTRAN X3.9-1978.	$360
• FORTRAN Compiler Validation System—1978	AD-A062 036
The FORTRAN Compiler Validation System is designed to test the subset language as defined in ANSI-FORTRAN X3.9-1978.	$540
• Telephone/Service Directory	PB-297 874
Provides telephone operators with up-to-date information for location and directory assistance and can generate camera-ready copy for printing a telephone and service directory.	$420

ALL THESE PROGRAMS OR SYSTEMS ARE CURRENTLY INSTALLED AT SEVERAL DIFFERENT ADP INSTALLATIONS.

FEDERAL SOFTWARE EXCHANGE CENTER

1. BIOLOGICAL AND MEDICAL SCIENCES

PB-222 236/2

Myasthenia Gravis Computer Program for Analysis of Pupil Response to a Light Stimulus.

Software. The Fortran 4 IBM 370/165 computer program reads a file of digitized data consisting of pupil size measurements and stimulus points. For each one-second interval it computes mean pupil size, max pupil size, and latency (time from occurance of stimulus to beginning of response, or time of occurance of Max); min pupil size and time of occurance of min, range of pupil size (amplitude of change), standard deviation of amplitude, and speed (mas slope from max pupil size to min pupil size). For each 30-second interval it computes average for the above values and standard deviations for latency, range and speed. Also a data card containing the 30-second averages for use later as input to packaged programs (eq-t-test). The program is self-documenting and contains comment cards describing input files and program features.

Software Description: The program is written in the Fortran 4 programming language for initial implementation on an IBM 370/165 computer.

Keywords: *Software, *Myasthenia gravis, *Computer programs, *Iris Sphincter, *Pupil responses(Eye).

Availability: NTIS, CP T03, 1 reel mag tape. Specify tape recording mode desired: 7 track, Bcd; or 9 track, Ebcdic. Price includes documentation.

PB-239 729/7

ICDA-8 Abbreviations Tape, List Program and Update Program.

Software. The users manual describes the need for abbreviations for the definitions of each disease, condition, or procedure code contained in the 8th Revision of the International Classification of Disease, Adapted (ICDA-8). An approach to meeting this need through provision of a list stored on magnetic tape, and tape format and other user information (including update and list programs stored on the same tape) is included. The intended users of the list are hospital discharge abstract services, although other groups dealing with ICDA-8 codes may also have applications for these abbreviated definitions.

Software Description: The program is written in the FORTRAN IV programming language for implementation on an IBM computer using the OS/MVT operating system. The computer memory requirement is 10K.

Related documentation: PB-239 730/5.

Keywords: *Software, *Medical records, *Diseases, Classifications, Manuals, Definitions, Magnetic tapes, Data tapes, *Hospital discharge data.

Availability: NTIS, CP T03, 1 reel mag tape. Specify tape recording mode desired: 9 track, Ebcdic; or 7 track, BCD. Price includes documentation.

PB-243 847/1

Nerve Membrane Model.

Models-simulation. There are four FORTRAN programs to compute numerical solutions to the Hodgkin-Huxley equations for a space-clamped nerve membrane in response to stimuli consisting of current pulses and/or steps, and to compute threshold values of such stimuli, in either single or double precision. These programs will be of use to neurophysiologists who wish to compute theoretical curves of membrane potential versus time for space and current clamped axons, or threshold values of stimuli, for comparison with experiment. Since the specification of the model is confined to a few subroutines, it is simple to modify the equations and change the model. The programs are designed for interactive use on a time-sharing computer (DECsystem-10), but can be modified for use on other computers. Instructions for use and test runs are given in the first file HINFO on the tape.

Software Description: The program is written in the Fortran programming language for implementation on a DEC-10 computer using the TOPS 6.01 operating system. The computer memory requirement is 56K.

Keywords: *Models-simulation, *Nerve cells, Computer programs, Simulation, Membranes(Biology), Magnetic tapes, Data storage, Mathematical models, Nervous system, Physiology, *Neurophysiology.

Availability: NTIS, CP T03, 1 reel mag tape. Specify tape recording mode desired: 9 track, EBCDIC; or 7 track, BCD. Price includes documentation.

Field 2—BUSINESS AND ECONOMICS

PB-246 222/4

Radioimmunoassay Data Processing: Listings and Documentation. Third Edition: Volumes I and II and Programs.

Software. The new program is written in FORTRAN IV-G, for use on the computer facilities at the NIH. It is stored as a load module to enable users to 'LOAD AND GO'. New features include a parallel line analysis which is provided whenever unknown samples are analyzed at two or more different dose levels, weighted averaging of potency estimates, clearer output format and new input options. This edition represents considerable revision and expansion of previous radioimmunoassay (RIA) data processing packages, in an attempt to move somewhat closer to an elusive universally applicable 'ideal'. The logic of the program has been reworked extensively, in an attempt to simplify and shorten the coding, and certain areas of redundancy and approximations have been eliminated.

Related documentation: PB-246 224/0, PB-246 223/2, PB-246 336/2.

Keywords: *Software, *Immunology, Magnetic tapes, Computer systems programs, Antigen antibody reactions, Radioactive isotopes, Assaying, Dosage, Data processing, *Radioimmunoassay.

Availability: NTIS, CP **T03,** 1 reel mag tape. Available only in 9 track, ASCII. Specify recording mode desired. Price includes documentation.

PB-270 744/6

CAUDAR - Computer Assisted Unit Data Acquisition/Reduction.

Software. A computer system for unit data acquisition and reduction (CAUDAR) is presented. Caudar deals with the general problem of the acquisition and reduction of data on activity of single neurons. This system digitally processes uninterrupted, continuous unit data with significant attention to waveform detail. High speed computer graphics generates quality figures with minimal experimenter intervention. The system affords a great economy of the user's time because the computer performs all repetitive data processing.

Software Description: The program is written in the Fortran and Assembly programming languages for implementation on a PDP 11/40 computer using the RT 11 operating system. 64K bytes of core storage are required to operate the model.

Related documentation: PB-270 745.

Keywords: *Software, *Data acquisition, *Data reduction, Computer programs, *Nerve cells, Magnetic tapes, Fortran, Assembly languages, Waveform recognition, PDP 11/40 computers, Medical computer applications, Neurons, Spike potential.

Availability: NTIS, CP **T10,** mag tape*. Source tape is in ASCII character set. Character set restricts preparation to 9 track one-half inch tape only. Identify recording mode by specifying density only. Call NTIS Computer Products, if you have questions. Price includes documentation.

PB81-233934

PILOT (LHC 8080).

Software. The Lister Hill National Center for Biomedical Communications (LHNCBC) has developed an extended version of CORE PILOT '73 called LHC 8080 PILOT which executes under the CP/M operating system for microprocessors. PILOT is a computer language especially designed to facilitate the authoring and delivery of instructional materials. Among the extended features of LHC 8080 PILOT are n-dimensional numeric arrays, multi-character variable names, string functions, extended matching, and dynamic construction and execution of statements.

Software Description: The program is written in the PL/M Assembly programming language for implementation on a Intel 8080 family computer using the CP/M 2.2 operating system.

Keywords: *Software, Computer programming, Instructional materials, Assembly languages, Microcomputers, Magnetic tapes, *Information systems, *Medical information systems, LHC-8080/Pilot computer program, Intel-8080 computers, PL/M assembly programming language.

Availability: NTIS, Diskette $30.00, mag tape*. Source Diskette is in the ASCII character set and was recorded with the Intel 8080 Cp/M22, IBM 3074 Format 8 inch floppy diskette. Copying is limited to the ASCII character set.

2. BUSINESS AND ECONOMICS

AD-A091 117/2

Comprehensive Occupational Data Analysis Programs (CODAP)

Software. CODAP is a series of computer programs for occupational analysis which: permit the transformation of job data into machine input form; allow certain mathematical and summary processes to occur; and present reports relative to job organization and statistical information related to defined job areas. The Export version of CODAP is contained on one reel of magnetic tape. It produces a single sheet of installation instructions and a punched deck containing these instructions. The tape contains detailed instructions and user job stream for installation, plus certain modules, CODAP execution procedures, and selected utility procedures.

Software Description: The system is written in Fortran and ALC for implementation on an IBM 360/40 or larger computer operating under OS/MVT. Memory requirement is 130K bytes.

Keywords: *Software, *Job analysis, Magnetic tape, Data processing, Input, Statistical analysis, Computer programs, Fortran, CODAP computer program.

Availability: NTIS, CP **T05,** mag tape. Availability: Source tape is in EBCDIC character set. Tape(s) can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions. Price includes documentation available only in draft form.

COM-73-10534/8

Computer Program File for the Report: Implementation and Evaluation of the Multi-regional Input-Output Model of the United States.

Software. The file contains Fortran V Univac 1108 computer program listings that were designed for use by EDA, the sponsoring organization. These programs will require modification according to individual needs and conditions at the purchasers computer facility for use with the data files accompanying the report.
Related documentation: PB-242 558.

Keywords: *Software, *Economic models, Computer programs, *Input output models.

Availability: NTIS, CP **T04,** 1 reel mag tape. Specify tape recording mode desired: 7 track, Bcd, or 9 track, Ebcdic, Price includes documentation.

PB-193 594/9

Corporate Finance Model Source Fortran Program: A Computer Program for Discounted Cash Flow Analysis, Final Version.

Models-simulation. The corporate finance model is a Fortran computer program designed for present worth and cash flow analyses. The primary constraints of the model are the debt-to-equity ratio and the requirement for a positive cash balance. Although the model is based on a corporation's financial structure, it is quite flexible and can be used to analyze government programs and other public ventures. The model can also be used to test the sensitivity of return on investment to interest and tax rates, investment credit, depreciation method and other variables. The tape contains the Corporate Finance Model Fortran Computer Program.
Software Description: The model is written in FORTRAN for implementation on a CDC 6600 under the SCOPE operating system. 25K words of core storage are required.
Related documentation: PB-190 673/4.

Keywords: *Models-simulation, Mathematical prediction, *Cash flow, Computerized simulation, *Discounted cash flow, Corporate finance, Industries, *Corporations, *Financial management.

Availability: NTIS, CP **T03,** 1 reel mag tape. Specify tape recording mode desired: 7 track, Bcd or 9 track, Ebcdic. Price includes documentation.

PB-201 043/7

Transoceanic Cargo Study: Forecast Model Research Study; Computer Program.

Models-simulation. The model consists of seven sub models that are used to combine several years of foreign trade data by converting to a common base code. Basic foreign trade tapes are from the Bureau of the Census. The standard IBM sort software is used to sort the raw data. A waterborne foreign trade master tape is produced along with an airborne foreign trade master tape - all at the three-digit level. These two files are then merged to produce a foreign trade master file which is used by the forecasting sub-model to produce the actual forecasts. Forecasts are prepared for each major U.S trading area (country) by three-digit commodity. These models may also be processed on any computer system having a Fortran 4 (or equivalent) compiler.
Related documentation: PB-201 042.

Keywords: *Models-simulation, *Cargo transportation, Economic analysis, *International trade, Data processing, *Economic models, *Marine transportation.

Availability: NTIS, CP **T03,** 1 reel mag tape. Specify tape recording mode desired: 7 track, Bcd; or 9 track, Ebcdic. Price includes documentation.

PB-201 044/5

Transoceanic Cargo Study: Distribution Cost Model Research Study; Computer Program.

Models-simulation. The model consists of 16 sub models. An extensive dictionary defining program variables and logic is included within the program as comment cards. The model is readily convertible for running on any computer system having a Fortran 4 compiler. The distribution cost model program calculates the following costs associated with the following modes of transportation: Inventory/warehouse, pick-up and delivery, inland line-haul, transocenic line-haul, packing insurance, documentation, and perishability for the rail, truck, barge, air, barge carrier, tanker, bulker, break bulker, and containership modes. It also calculates the distances between cities considered and the time parameters associated with each shipment and mode. The rationale, logic, and equations of this model are extensively discussed in volume 2 of the DOT Transoceanic Cargo Study final report.
Software Description. The program is written in the FORTRAN IV programming language for implementation on an IBM 360/65 computer.
Related documentation: PB-201 042.

Keywords: *Models-simulation, *Cargo transportation, *Economic models, *International trade, *Cost analysis, *Marine transportation, Intercity distances.

Availability: NTIS, CP **T03,** 1 reel mag tape. Specify tape recording mode desired: 7 track, Bcd; or 9 track, Ebcdic. Price includes documentation.

PB-230 425/1

Bureau of Labor Statistics Seasonal Factor Method (1966) Seast. FORTRAN IV Computer Program.

Software. SEAST program is oesigned to compute seasonal factors and seasonally adjusted data for monthly time series. The BLS method is an intractive ratio-moving-average method which partitions the original series into three multiplicative components. It differs from similar methods in the following respects: The trend-cycle is obtained from the 12-month moving average by restoring any residual trend-cycle which finds its way into the irregular component. This adjustment for the deficiency of the moving average is developed explicitly and is made available for review in a table of trend-cycle correc-

tion values. The method allows for the possibility of change in the irregular amplitude due to modifications in the producing mechanism or to economic changes. Each observation has a supplementary weight, called a credence factor, which is used in the various averaging processes. These weights are based on the size of each irregular component, and they reduce the effect of observations having large irregularities. The credence factors also are used to generate modified original values, whose 12-month moving average is substantially free of the effect of deviant original values.

Software description: The program is written in Fortran IV programming language for implementation on an IBM 360/65 computer. The computer memory requirement is 82K.

Keywords: *Software, *Economic analysis, *Time series analysis, SEAST computer program.

Availability: NTIS, CP **T03,** mag tape. Source tape is in EBCDIC character set. Tapes can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired. Call NTIS Computer Products if you have questions. Price includes documentation.

PB-233 781/4

ECON2 - Project Formulation - Economics,

For complete citation, see 5 **Civil and Structural Engineering.**

PB-240 373/1

USAC Treasury Management Municipal COBOL Computer Program Module Magnetic Tape.

For complete citation, see 14 **Municipal Information Systems.**

PB-240 377/2

USAC General Revenue Municipal COBOL Computer Program Module Magnetic Tape.

For complete citation, see 14 **Municipal Information Systems.**

PB-240 378/0

USAC Utility Billing COBOL Computer Program Module Magnetic Tape.

For complete citation, see 14 **Municipal Information Systems.**

PB-240 379/8

USAC Accounting/Disbursing Municipal COBOL Computer Program Module Magnetic Tape.

For complete citation, see 14 **Municipal Information Systems.**

PB-242 761/5

Building Permits Processing Municipal Cobol Computer Programs Module Technical Tape.

For complete citation, see 14 **Municipal Information Systems.**

PB-243 415/7

Code Enforcement Municipal Cobol Computer Programs Module Technical Tape.

For complete citation, see 14 **Municipal Information Systems.**

PB-250 761/4

Purchase Order Processing System (POPS). Release No. 1.

For complete citation, see 14 **Municipal Information Systems.**

PB-251 327/3

Economic Impact of Fiscal Constraints on Water Project Construction.

Models-simulation. The primary objective was to develop a tool for use by high level policy and budgetary decision-makers in the Office of Management and Budget, Department of the Interior, and Department of the Army in determining the economic impacts of fiscal constraints on water project construction. A computerized model was developed and tested on the Cave Run Lake Project, Kentucky, and the Auburn-Folsom South Unit, California. On the basis of the test results, it was concluded the model yields satisfactory estimates of benefit losses and changes in economic costs associated with construction stretch-outs and delays resulting from fiscal constraints. The model performs an economic analysis of a given project with and without fiscal constraints. The without situation corresponds to full funding of the construction program. The with situation corresponds to a reduced level of funding either in the budget year under review or in subsequent years. The model measures the changes in benefits, construction costs, related non-project costs, operation and maintenance costs, and flood damage risk associated with these alternative funding scenarios. The present worth of the net benefits and costs are computed for a range of interest rates to test the sensitivity of economic impacts to changes in the interest rate. A brief description of the main program and the subroutine is included in the technical appendix to the report. Whenever flow charts are needed they are included. A general flow chart of the main program is included. A computer program listing is included in the last part of the appendix.

Related documentation: PB-251 326.

Keywords: *Models-simulation, *Water supply, *Project planning, *Economic analysis, Measurement, Computer programming, Economic models, Construction costs, Constraints, Losses, Financing, Interest, Delay time, Benefit cost analysis, Flooding, Flow charting, Magnetic tapes, Cave Run Lake project, Auburn Folsom south unit(California).

Availability: NTIS, CP **T04,** 1 reel mag tape. Source tape is in EBCDIC character set. Tape can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired. Call NTIS Computer Services if you have questions. Price includes documentation.

PB-252 631/7

Project Management System (PMS) Through the Use of the Critical Path Method (CPM).

For complete citation, see 16 **Transportation.**

PB-263 953/2

Marginal Cost and Pricing of Electricity: An Applied Approach (Computer Programs). Release No. 1.

For complete citation, see 8 **Energy.**

PB-266 722/8

Budget Presentation.

Software. This system converts internal base budgets into products that meet the external requirements imposed by the Bureau of the Budget and Congress. It provides Budget Division with updated budget detail and informs operating divisions of what was included for them in the most recent budget submissions. The original data input is very similar to current year operating budget structure and through a series of distributions all indirect budget data is converted to direct appropriations. Then the current year data is adjusted to the budget year for Congressional Submission. Positions and cost data are balanced.

Software Description: The system is written in COBOL and ALC for implementation on an IBM 360/40 under DOS. 20K of core storage is required.

Related documentation: PB-266 723.

Keywords: *Software, *Budgeting, Computer programs, *Federal budgets, Budget presentations, Magnetic tapes, Budget estimates, Appropriations, Allocations, Tape drives = four.

Availability: NTIS, CP **T12**, mag tape. Source tape is in BCD character set and certain fields contain packed decimal data. Character set restricts preparation in 9 track one-half inch tape only. Identify recording mode by specifying density only. Call NTIS Computer Products if you have questions. Price includes documentation.

PB-266 741/8

Five-Year Lease Versus Cost Analysis.

Software. This package consists of two programs that may be used in a lease versus cost analysis study. Individual analysis of items, subtotal analysis for groups of items, and total analysis for items are produced. Program calculates such items as rental credits, GSA purchase price, net purchase price, discounts, break-even points, present values, and residual values. Present value factors and residual value factors are calculated in accordance with GSA guidelines. Input is item description, discount rate, rental price, purchase price, rental credit percentage, date received, and maintenance cost.

Software Description: The programs are written in FORTRAN 5 for implementation on UNIVAC 1100 computers under EXEC 8. Approximately 8K words of core storage are required.

Related documentation: PB-266 742.

Keywords: *Software, *Leasing, *Cost analysis, Computer programs, Magnetic tapes, Purchasing, Prices, Government procurement.

Availability: NTIS, CP **T08**, mag tape. Source tape is in Fieldata character set. Character set restricts preparation to 9 track one-half inch tape only. Identify recording mode by specifying density only. Call NTIS Computer Products, if you have questions. Price includes documentation.

PB-269 167/3

Accounts Payable System.

Software. This system consists of some 15 programs. Inputs are receiving reports and other documents evidencing receipt and acceptance of goods and services, and invoices. The system matches the two and schedules matched invoices for payment. Outputs are: 1166 schedule, magnetic tape for Treasury, list of open accounts payable for general ledger reconciliation.

Software Description: The system is written in COBOL for implementation on a UNIVAC 1108 under EXEC 8. Approximately 65K words of core storage are required.

Related documentation: PB-269 168.

Keywords: *Software, Accounts payable, Computer programs, Invoices, Magnetic tapes, *Accounting, Tape drives = two, Disc-drum units = one.

Availability: NTIS, CP **T12**, mag tape. Source tape is in Fieldata character set. Character set restricts preparation to 7 track, odd parity, one-half inch tape only. Identify recording mode by specifying density only. Call NTIS Computer Products, if you have any questions. Price includes documentation.

PB-269 608/6

Supplies Inventory.

Software. This system is a semimonthly update of consumable stock items inventory. The input is the receipt documents from vendors and the issue documents showing transfer of stock items to the open stock room and to specific divisions. During the update process the remaining balance on hand of each stock item is checked against a predetermined minimum balance and if quantity is less than minimum balance an order is automatically prepared. An undelivered order record for input to the accounting system is prepared whenever an order is placed. Charges for supplies used by each division are prepared during this process and entered into the accounting system monthly. Open stock room items are charged on a percentage based on number of employees per division. Fedstrip orders for nonstock items of GSA are punched and processed through this system to maintain the uniformity of orders and the accounting systems undelivered orders. Monthly the receipt records from this system are reconciled with the accounting systems accruals for supplies. Differences are noted and reviewed for purposes of balancing the inventory general ledger account.

Software Description: The system is written in COBOL for implementation on an IBM 360/40 under DOS. Approximately 30K of core is required.

Related documentation: PB-269 609.

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Keywords: *Software, *Inventory control, Computer programs, *Accounting, Inventories, Magnetic tapes, Tape drives = four, Disc-drum units = 29.

Availability: NTIS, CP **T05,** mag tape. Source tape is in BCD character set. Tape(s) can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions. Price includes documentation.

PB-270 901/2

Project Reports System

Software. This system consists of 30 programs which produce about 20 reports of financial obligations at various levels of summarization. The reports are used by NBS managers to monitor spending on projects or programs for which they are responsible.
Software Description: The system is written in the COBOL programming language for implementation on a UNIVAC 1108 computer using the EXEC 8 version 225 operating system. The computer memory requirement is 900K.
Related documentation: PB-270 902.

Keywords: *Software, *Financial management, Report generators, Computer programs, Costs, Research projects, *Reporting.

Availability: NTIS, CP **T12,** mag tape. Source tape is in FIELDATA character set. Character set restricts preparation to 9 track. Identify recording mode by specifying density only. Call NTIS Computer Products, if you have any questions. Price includes documentation.

PB-271 948/2

Budget/Progress Reporting System.

Software. The general purpose of this system is to provide uniform procedures for planning a project in terms of manpower, money and materials required and the subsequent monitoring of the project. Further, the system utilizes the various sub-systems, currently in operation on an integrated basis in order to provide data in the areas of accounting, budgeting and progress reporting. This data is stored in a data base managed by Cincom's TOTAL 7 Data base Management System. Data is extracted from the data base as needed for the various budget reports, progress reports and a series of projection reports comparing budgets to actual costs and projected costs to end of year.
Software Description: The system is written in the COBOL and ALC programming languages for implementation on an IBM 360/40 computer using the DOS 26.3, POWER II level, operating system. The computer memory requirement is 96K bytes.

Keywords: *Software, *Project management, Computer programs, Accounting, *Budgeting, Manpower, Total 7 system, Materials requirements, Data base management systems, Cost estimates, *Reporting.

Availability: NTIS, CP **T08,** mag tape. Specify tape recording mode desired. Price includes documentation.

PB-272 683/4

X-11 Quarterly Seasonal Adjustment Program.

Software. The X-11 quarterly program adjusts quarterly economic time series by measuring seasonal fluctuations in the original data and separating these fluctuations into trend, cyclical, trading-day and irregular fluctuations according to definition. The seasonal adjustment method used in the program is the ratio-to-moving-average method, selected because of its accuracy and flexibility. The program is designed for card input, and a version is available which not only produces listed output but also card output (called X11QP).
Software Description: The program is written in Fortran 4 for implementation on a Honeywell 2015 under DOS. Approximately 82K of core is required.
Related documentation: PB-261 432/9.

Keywords: *Software, *Economic analysis, *Time series analysis, Trends, Seasonal variations, Moving average, Economic adjustments, Tape drives = five.

Availability: NTIS, CP **T08,** mag tape. Source tape is in EBCDIC character set and certain fields contain packed decimal data. Character set restricts preparation in 9 track one-half inch tape only. Identify recording mode by specifying density only. Call NTIS Computer Products if you have questions. Price includes documentation.

PB-272 704/8

X-11 Monthly Seasonal Adjustment Program.

Software. The X-11 monthly program adjusts monthly economic time series by measuring seasonal fluctuations in the original data and separating these fluctuations into trends, cyclical, trading-day, and irregular fluctuations according to definition. The seasonal adjustment method used in the program is the ratio-to-moving average method, selected because of its accuracy and flexibility designed for card input, and a version is available that will not only produce listed output but also card output (called X11mp).
Software Description: The program is written in Fortran 4 for implementation on a Honeywell 2015 under DOS. Approximately 117K of core is required.
Related documentation: PB-261 432/9.

Keywords: *Software, *Time series analysis, *Economic analysis, Tape drives = five, Other = Card reader, Other = Card punch, Other = Printer.

Availability: NTIS, CP **T08,** mag tape. Source tape is in EBCDIC character set. Tape(s) can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions. Price includes documentation.

PB-273 546/2

Internal Accounting Reports System.

Software. A system of 15 programs which supplies data needed to prepare working capital fund fiscal reports, such as SF-133. The most important reports summarize accrued costs and unliquidated obligations by funding source and by object class, at the center level and above. Input data is supplied by the project reports system.
Software Description: The system is written in COBOL for implementation on a UNIVAC 1108 under EXEC 8. 150K words of core storage are required.
Related documentation: PB-270 889.

Keywords: *Software, *Accounting, Computer programs, Working capital, Fiscal policies, Financial management, H=Univac-1108, L=Cobol, Tape drives = two, Reporting.

Availability: NTIS, CP **T08,** mag tape. Source tape is in FIELDATA character set. Character set restricts preparation to 7 track, odd parity, one-half inch tape only. Identify recording mode by specifying density only. Call NTIS Computer Products, if you have any questions. Price includes documentation.

PB-273 592/6

HUD Residential Solar Economic Performance Model.

Models-simulation. This item includes the source code and data file for the HUD Residential Solar Economic Performance Model. The model is an interactive computer program that permits analysis of a wide range of residential solar energy applications for actual conditions of location, housing type, market economics, and other economic or financial factors. Output is provided in a number of report formats oriented to different users. The program can be used to access the economics of both single and multi-family solar applications. The user is given flexibility in specifying either a small basic set of inputs or a large number of individual items. The program supplies average or best-estimate default values for input items not known or readily available to the user. Available documentation includes a Users Manual and Programmers Manual.

Software Description: This program is written in the Fortran IV programming language for implementation on a UNIVAC 1108 computer using the EXEC 8 operating system. A minimum of 30K words of core storage is needed to successfully use the system.

Related documentation: PB-273 199/0, PB-273 200/6.

Keywords: *Models-simulation, *Economic models, *Solar heating systems, *Residential buildings, Houses, Solar space heating, Solar air conditioning, Hot water heating, Fortran, Solar water heating.

Availability: NTIS, CP **T03,** mag tape*. Source tape is in ASII character set. Character set restricts preparation to 9 track one-half inch tape only. Identify recording mode by specifying density only. Call NTIS Computer Products, if you have questions. Price includes documentation.

PB-274 243/5

Retirement Annuity

Software. The program computes the retirement annuity of an employee for all widow options. Annuities may be projected based on static sick leave and no step or grade increase. Cost of living bonus and retirement deduction are optional inputs. Salary used may be for 36 months. Deduction for under age 55 is also computed.

Software Description: The program is written in COBOL for implementation on a UNIVAC 1108 under EXEC 8. Approximately 11K words of core storage are required.

Related documentation: PB-274 244/3.

Keywords: *Software, *Retirement, Widow options, Computation.

Availability: NTIS, CP **T08,** mag tape. Source tape is in EBCDIC character set. Tape(s) can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Price includes documentation.

PB-281 945/6

Performance Review for Operating Programs.

Software. PROP is a system to measure, report and/or control productivity of employee performance, progress of jobs, and cost of personal services and data input preparation costs. Each employee reports all time worked on specific jobs, either daily or weekly. This data is edited, corrected and used as input to weekly, monthly, and quarterly reports of performance, hours and standards, costs, and error rates at several organizational levels. An incentive award system based on productivity is run quarterly; a performance error report of very high or very low performanc is prepared weekly. Monthly rental charges for key punch, inforex, etc. use and monthly costs for personal services for input to the accounting system are obtained from corrected PROP data. Corrected PROP employee records are used as input to the management information system. Other PROP functions include reconciliation biweekly of PROP and payroll costs by employee and a monthly report of exceptional charges outside primary assignment area. There are 34 programs in this system.

Software Description: The program is written in the COBOL programming language for implementation on an IBM 360/30 computer using the DOS vers. 26.3 power II operating system. Computer memory requirement is 93K.

Related documentation: PB-281 946.

Keywords: *Software, Personnel, *Performance evaluation, Management information systems, Job analysis, Personnel management, Productivity, Cost analysis, Editing routines, Computer personnel.

Availability: NTIS, CP **T12,** mag tape. Specify tape recording mode desired. Price includes documentation.

PB81-182982

Bidders Mailing List.

Software. A listing is provided of all personnel, by company, who have expressed a desire to participate in bidding on jobs on an army base. List is in alpha sequence by type of service offered.

Software Description: The program is written in the ANSI COBOL programming language for implementation on an IBM 360/50 computer using the DOS operating system, 40K bytes of core storage is required to operate the model.

Related documentation: PB81-182990.

Keywords: *Software, Mailing lists, *Bids, Computer programming, Listings, *Mail, *Contractors, Contract administration, Purchasing, Contracted services, Cobol.

Availability: NTIS, CP **T03,** mag tape. Source tape is in EBCDIC character set. Tapes can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions. Price includes documentation.

PB81-184913

Oil and Gas Reservoir Per Se Dynamic Model with Associated Economic Model.

For complete citation, see 15 **Natural Resources and Hydrology.**

PB81-196453

Evaluation of Findings from Nurse Practitioner and Physician Assistant Studies: PE Aggregate Data File and Related Software.

For complete citation, see 11 **Health Care.**

PB81-201212

Conceptual Capital Cost Model.

For complete citation, see 8 **Energy.**

3. CARTOGRAPHY

COM-74-10921/6

The NOS HYDROPLOT/HYDROLOG System Software Library.

For complete citation, see 17 **Miscellaneous.**

PB-198 589/4

Electronic Computer Program for Stereocomparator Coordinater Reduction (TIES Computer Program No. R-0100).

Software. The file consists of the punched cards of a computer program related to analytical aerial triangulation to be used for reducing stereocomparator measured coordinates from photographs with four side fiducials.
Software Description: The program is written in Fortran 4 for use on an IBM 360 making use of the double precision feature. The program consists of a main calling program and 20 subroutines.
Related documentation: PB-198 590/2.

Keywords: *Software, Computer programs, Aerial photographs, Analytic aerial triangulation, *Comparators, Fortran, *Analytical photogrammetry, Triangulation, *Aerial photography.

Availability: NTIS, CP **T03,** 1 reel mag tape. Specify tape recording mode desired: IBM compatible, 7 track, 556 or 800bpi, Bcd, odd or even parity; or 9 track, 800bpi, Ebcdic, odd parity.

PB-198 593/6

Electronic Computer Program for Analytical Strip Triangulation (TIES Computer Program No. R-0300).

Software. The file contains card images for a computer program which is a sequel to program R-0200 in that it combines R-0200 with the previously published program titled 'A Fortran Program for the Adjustment of Strips and of Blocks by Polynomial Transformation' by G.H. Schut, National Research Council of Canada AP-PR33 dated February 1968. The combined program permits the computation of ground x, y, z coordinates derived from comparator measurements made on aerial photographs in a single pass operation.
Software Description: Program written in Fortran 4 for implementation on an IBM 360/50.
Related documentation: PB-198 594/4.

Keywords: *Software, Computer programs, *Analytical photogrammetry, *Aerial photography, *Triangulation.

Availability: NTIS, CP **T02,** 1 reel mag tape. Specify tape recording mode desired: 7 track, Bcd, or 9 track, Ebcdic. Price includes documentation.

PB-223 180/1

BUDAK Program Documentation, -XY to Geographic Coordinates-Version 1.

Software. BUDAK is an IBM Systems 360 Fortran program that transforms X and Y data in counts per inch to latitude and longitude values. Map projections which can be inverted include the following: Mercator, Polar Stereographic, Lambert Conformal Conic with two standard parallels, Transverse Mercator Sphere, Transverse Mercator Spheroid and Kavraisky IV Conic Equal Interval. Program was originally used to create World Data Bank I (Accession No. PB-223 178) of the AUTOMAP System.
Software Description: The program is written in Fortran for implementation on IBM 360 series computers.
Related documentation: PB-223 179/3.

Keywords: *Software, *Automatic mapping, Magnetic tapes, Map projection, Fortran, *Mapping, BUDAK computer program, Cartography, AUTOMAP system, CIA.

Availability: NTIS, CP **T03,** 2400 ft mag tape. Specify tape recording mode desired: 7 track, 556 and 800bpi, odd and even parity; or 9 track, 800bpi, odd parity. Price includes documentation.

PB-227 228/4

Urban Traffic Control System FORTRAN 4 Source Program and Benchmark Tape.

For complete citation, see 16 **Transportation.**

PB-244 903/1

Rotate and Scale (ROTSAL) Program for Cartographic Application.

Software. The Rotate and Scale (ROSTAL) program is an IBM System 360 FORTRAN program for cartographic application which accepts as input the raw digitized x-y coordinate data, performs several automatic map editing functions, and outputs data in the Graphic Data Format. The program also allows for automatic I/O error recovery from illegal characters of incomplete records in the raw digitized map data. The Automatic Map Editing functions are: rotate the data through an angle determined by the position of the three corners of the map; scale (calibrate) the data from digitizer measurements; offset and shift the data to an origin of (0,0); eliminate duplicate

points; check the distance between consecutive data points and either discard the point, or create additional points between the two values; close lines for islands and lakes; and allow for partial or complete deletion of a line. ROTSAL was developed as an aid for creating World Data Banks of the AUTOMAP System.
Related documentation: PB-244 904/9.

Keywords: *Software, *Automatic mapping, Computer programs, Graphic methods, Curve fitting, Algorithms, Magnetic tapes, *Mapping, ROTSAL computer program, Computer graphics, AUTOMAP system.

Availability: NTIS, CP **T03,** 1 reel mag tape. Specify tape recording mode desired: 9 track, EBCDIC; or 7 track, BCD. Price includes documentation.

PB-244 905/6

Graphic Data Presentation and Edit Program (GADPET) for Interactively Displaying and Editing Map Data on the IBM 2250 CRT Terminal.

Software. The Graphic Data Presentation and Edit (GADPET) program is an IBM System 360 FORTRAN and Assembler Language program which was developed to allow the user to interactively display and edit map type data on the IBM 2250 cathode-ray-tube terminal. IBM's Graphic Support Package Subroutines are used to interface with the IBM 2250. GADPET permits a number of map editing functions to be performed interactively such as combining two or more lines into a new line with proper direction, extending a line, deleting a complete line, deleting points from a line, adding points to a line, and constructing a new line. The program was developed as an aid for creating World Data Banks of the AUTOMAP System.
Related documentation: PB-244 906/4.

Keywords: *Software, *Automatic mapping, Computer programs, Graphic methods, Programming manuals, Magnetic tapes, *Mapping, *Computer graphics, GADPET computer program, *Interactive graphics, AUTOMAP system.

Availability: NTIS, CP **T03,** 1 reel mag tape. Specify tape recording mode desired: 9 track, EBCDIC; or 7 track, BCD. Price includes documentation.

PB-270 303/1

CAM - Cartographic Automatic Mapping Program, 5th Edition.

Software. CAM (Cartographic Automatic Mapping) is an IBM System/360 Fortran level H or G and Assembly Language Code (ALC) program that performs a wide variety of cartographic functions. Included are 16 map projections, the Universal Transverse Mercator (UTM) grid system, and an XY (One for One) data display routine. CAM will connect points with straight lines or circles, and draw line grids, range rings, ellipses, cones, symbols, azimuths and elevation rings. Included is a World Coastline file of 8200 points, but CAM may also be used in conjunction with World Data Bank I, a 100,000 point file separately contained on Accession No. PB-223 178. A significant new feature of CAM-5th Edition also allows its use in conjunction with World Data Bank II, which contains approximately 6 million points contained on 5 separate geographic area files. These geographic area files are Volumes 1-5, and contain, respectively, 1--North America; 2--South America; 3--Europe; 4--Africa; 5--Asia. World Data Bank II is available through the National Technical Information Service.
Software Description: This program is written in the Fortran and ALC programming languages for implementation on a IBM 360/370 computer using the OS/M VT rel. 21.8 operating system. 512K bytes of core storage are required to operate the model.
Related documentation: PB-270 304, PB-251 390.

Keywords: *Software, *Automatic mapping, Computer programs, Magnetic tapes, Assembly languages, *Mapping, CAM computer program, Universal transverse mercator.

Availability: NTIS, CP **T05,** mag tape*. Source tape is in EBCDIC character set. Tape(s) can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions. Price includes documentation.

PB-272 486/2

General Cylindrical Projection Program.

Software. This program computes a cylindrical projection (standard mercator or Miller's) on any specified spheroid for a given graphic area. Coordinates for the projection are generated and written to a BCD magnetic tape for plotting on the Aeroservice and/or Calcomp plotter. The magnetic tape containing the Aeroservice plot is input to the 1401 Aeroservice plotter program, which will transcribe the data to paper tape.
Software Description: The program is written in Fortran for implementation on a UNIVAC 1108 under EXEC 8. 15K words of core storage are required.

Keywords: *Software, *Mapping, Mercator projection, Miller projection, Spheroids, Plotting, Computer graphics, Tape drives = two.

Availability: NTIS, CP **T08,** mag tape. Source tape is in FIELDATA character set. Character set restricts preparation to 9 track one-half inch tape only. Identify recording mode by specifying density only. Call NTIS Computer Products, if you have questions. Price includes documentation.

PB-272 487/0

Geographic/Grid Plot.

Software. This program transforms coordinates from either UTM or PGK grid coordinates to geographic coordinates, or from geographic coordinates to either UTM or RGK grid coordinates, depending upon option selected. When the transformation is from geographic to grid, the following plots may be generated: Calcomp, APPS, Aeroservice. One of five commonly used spheroids may be chosen, or the user may input the semimajor axis, eccentricity squared, and name of the spheroid. The user may also elect to generate punched card output. The user may force the zone by entering on the input card a zone other than the normally computed zone when conversion is geo-grid. If, when doing so, the point is greater that 500K meters west of the central meridian, the easting value will be negative.

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Software Description: The program is written in Fortran for implementation on a UNIVAC 1108 under EXEC 8. 32K words of core storage are required.

Keywords: *Software, *Mapping, *Grids(Coordinates), Transformations, Spheroids, Plotting, Tape drives = one, Universal transverse Mercator.

Availability: NTIS, CP **T08,** mag tape. Source tape is in FIELDATA character set. Character set restricts preparation to 9 track one-half inch tape only. Identify recording mode by specifying density only. Call NTIS Computer Products if you have questions. Price includes documentation.

PB-274 071/0

Graphic Improvement Software Transformation System.

Software. The GISTS System operates in seven phases called levels. Level 1 creates the GISTS Master File from digitized point and line data which is input on tape. Level 2 merges two GISTS Master File. Thus, all data pertaining to one map sheet, although digitized at different times, can be stored in one GISTS Master File. Level 3 plots the data stored in the GISTS Master File. This level is used for verification of data. Level 4 updates the GISTS Master File. Levels 5 and 6 analyze the data in the GISTS Master File and makes changes such as tail trimming, gap filling, deleting identical sets of lines, moving features to prevent overprinting, etc. Level 7 produces final symbolization plots, including dashed lines, buildings, proper line weights, contour labels and misc. map symbols.
Software Description: The program is written in the Fortran V programming language for implementation on a Univac 1108 computer using the EXEC 8 operating system. 60K words of core storage are required to operate the model.

Keywords: *Software, *Computer graphics, *Mapping, *Computer aided mapping.

Availability: NTIS, CP **T08,** mag tape. Source tape is in FIELDATA character set. Call NTIS Computer Products if you have any questions. Price includes documentation.

PB-274 605/5

Geographic Depiction and Statistical Evaluation.

Software. Given a file defining a field function over a geographic area, this program prints a character correspondence 'map' depicting that function over that area. In addition, a bar graph is printed to show statistical properties of the function. The statistical properties include standard deviation, smallest value, largest value, average value, and number of values. This information can be scanned for rapid analysis of the characteristics of the function.
Software Description: The program is written in Fortran 5 for implementation on a UNIVAC 1108 under EXEC 8. Approximately 11K words of core storage are required.

Keywords: *Software, *Mapping, Statistical analysis, Gedase computer program, Standard deviation, Tape drives = one.

Availability: NTIS, CP **T08,** mag tape. All prices cited are for the North American Continent ONLY, all others write for quote. Price includes documentation.

PB-276 367/0

Transverse Mercator Point Plot.

Software. This program generates a projection and/or converts geographic coordinates to transverse mercator grid coordinates and vice versa. Major input options let the user select one of the following: 1. Projection for transverse mercator grid; 2. Geographics to transverse mercator grid; 3. Transverse mercator grid to geographics; 4. Projection and geographic to transverse mercator grid.
Software Description: The program is written in Fortran for implementation on a UNIVAC 1100/40 computer under EXEC 8. 17K bytes of core storage are required.
Related documentation: PB-276 368/8.

Keywords: *Software, *Geodetic coordinates, Transverse Mercator projection, Tape drives = two.

Availability: NTIS, CP **T08,** mag tape. Source tape is in FIELDATA character set. Character set restricts preparation to 9 track one-half inch tape only. Identify recording mode by specifying density only. Call NTIS Computer Products if you have questions. Price includes documentation.

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PB-196 092/1

Multiphasic Buffer Systems (Systems Output Tape No. 8).

Software. The program contains card-images of the IBM 360 Fortran source program statements, with some 2029 statements. The program considers the restrictions of the moving boundary theory of multiphasic buffer systems by T. M. Jovin.
Related documentation: PB-196 091/3, PB-196 090/5, PB-196 089/7.

Keywords: *Software, *Electrophoresis, *Buffers(Chemistry), *Polyacrylamides, Gels, Computer programs.

Availability: NTIS, CP **T03,** 1 reel mag tape. Specify tape recording mode desired: 7 track, Bcd; or 9 track, Ebcdic. Price includes documentation.

PB-203 016/1

Multiphasic Buffer Systems (Fortran Retrieval Program).

Software. The IBM 360/65 Fortran retrieval program allows retrieval and listing of any one system from the multiphasic buffer systems output tapes. The desired system number can be selected from the catalogue, PB-196 190. Five assembly language input/output and character handling routines are included.
Related documentation: PB-196 091/3, PB-196 090/5, PB-196 089/7.

Keywords: *Software, *Electrophoresis, *Buffers(Chemistry), *Polyacrylamides, Gels, Information retrieval, Programming languages.

Availability: NTIS, CP **T03,** 1 reel mag tape. Specify tape recording mode desired. Price includes documentation.

PB-257 728/6

A FORTRAN Program for Statistical Analysis of Crystallographic Quantities.

Software. This Report describes a FORTRAN computer program for evaluation of (1) the results of crystallographic least-squares refinements by examination of the residuals, (2) differences in sets of data collected by different methods from the same crystal, (3) differences in data sets collected by the same method from different crystals of the same material, and (4) the differences in parameters in different models representing the crystal structure of the same material. Part of the evaluation is accomplished by plots of residuals against the expected normal distribution quantities. Additional plots compare residuals with the independent variable, d*, and with the calculated variable F(c squared)sin 2 theta. The Miller indices can be used to divide a data set into various classes and octants so that the possibility of anisotropic effects can be examined. The program will treat up to 7200 data points in each of two experimental data sets or 1000 structural parameters, and is oriented specifically towards examining crystallographic data.
Software Description: The program is written in the FORTRAN programming language for implementation on a UNIVAC 1108 computer using the EXEC 8 operating system. The computer memory requirement is 50K words (300K bytes).
Related documentation: PB-257 729.

Keywords: *Software, *Crystallography, Crystal structure, Fortran, Computation, Least squares method, Statistical analysis, Computer programs, Magnetic tape.

Availability: NTIS, CP **T04**, mag tape. Source tape is in BCD character set. Tape can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Specify recording mode desired. Call NTIS Computer Products if you have questions. Price includes documentation.

PB-261 026/9

WATEQF - A FORTRAN Version of WATEQF, a Computer Program for Calculating Chemical Equilibrium of Natural Waters.

Models-simulation. WATEQF is a FORTRAN IV computer program that models the thermodynamic speciation of inorganic ions and complex species in solutation for a given water analysis. The orgininal version (WATQ) was written in 1973 by A.H. Truesdell and B.F. Jones in Programming Language/one (PL/1). With but a few exceptions, the thermochemical data, speciation, activity coefficients, and general calculation procedure of WATEQF is identical to the PL/1 version. The User's Guide notes the difference between WATEQF and WATEQ, demonstrates how to set up the input data in execute WATEQF, provides a test case for comparison, and make available a listing of WATEQF.
Software Description: The program is written in the FORTRAN IV programming language for implementation on an IBM 370/155 computer using the OS operating system. 110K bytes of core storage are required to operate the program.
Related documentation: PB-261 027.

Keywords: *Models-simulation, Computer systems programs, *Chemical analysis, Ions, Water analysis, *Water chemistry, Numerical analysis, Surface waters, Fortran, Inorganic compounds, Complex ions, *Computer models, WATEQF computer program.

Availability: NTIS, CP **T03**, mag tape. Source tape is in EBCDIC character set. Tape(s) can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, tract, density, and parity. Call NTIS Computer Products if you have questions. Price includes documentation.

PB-269 415/6

Wave Equation Analysis of Pile Driving System.

For complete citation, see 15 **Natural Resources and Hydrology.**

PB-279 503/7

Users' Manual for Kalker's Simplified Nonlinear Creep Theory

Models-simulation. The conversion of the computer program, 'Simplified Theory of Rolling Contact,' (used for calculation of a nonlinear creep force-creepage relationship) from the original Algol language to Fortran is considered. The Algol program was written by Professor J. J. Kalker and was derived from the paper, 'Simplified Theory of Rolling Contact,' Delft Progr. Rep., Series C: Mechanical and Aeronautical Engineering and Shipbuilding, 1 (1973), pp. 1-10. A significant number of changes was made in the program for more convenient use; however, the fundamental equations remain unchanged. The results were checked in detail to insure agreement with the original solution. The program gives an appropriate solution for the resultant tangential creep forces and spin moment acting between two bodies of equal linearly elastic material properties. The creep forces and spin moment are due to lateral, longitudinal, and spin creepages. Assumptions corresponding to the Hertz contact theory are implied and two additional simplifying assumptions are made, resulting in a significant reduction in computation time as contrasted with previous solutions. Two separate computer codes were developed, the first being the general solution with extended input and output, and the second a shortened version primarily intended for use as a subroutine. Surprisingly good agreement is found to exist between the 'Simplified Theory' and published experimental results for a wide range of contact ellipse eccentricity.

Related documentation: PB-285 467/7, PB-285 468/5, PB-299 312/9.

Keywords: Railroad tracks, Vehicle wheels, *Creep properties, Nonlinear systems, Dynamic response, Rolling contact loads, Fortran, Computer programs, Fortran 4 programming language, IBM 370/3165 computers, Rail wheel interactions.

Availability: NTIS, PC **A04**/MF **A01**, 58.

PB-285 467/7

Kalker's Simplified Nonlinear Creep Theory (Complete Solution).

Software. The conversion of the computer program, 'Simplified Theory of Rolling Contact', (used for calculation of a nonlinear creep force-creepage relationship) from the original Algol language to Fortran is considered. The Algol program was written by Professor J. J. Kalker and was derived from the paper, 'Simplified Theory of Rolling Contact', Delft Progr. Rep., Series C: Mechanical and Aeronautical Engineering and Shipbuilding, 1 (1973), pp. 1-10. A significant number of changes was made in the program for more convenient use; however, the fundamental equations remain unchanged. The results were checked in detail to insure agreement with the original solution. The program gives an appropriate solution for the resultant tangential creep forces and spin moment acting between tow bodies of equal linearly elastic material properties. The creep forces and spin moment are due to lateral, longitudinal, and spin creepages. Assumptions corresponding to the Hertz contact theory are implied and two additional simplifying assumptions are made, resulting in a significant reduction in computation time as contrasted with previous solutions. Two separate computer codes were developed, the first being the general solution with extended input and output, and the second a shortened version primarily intended for use as a subroutine. Surprisingly good agreement is found to exist between the 'Simplified Theory' and published experimental results for a wide range of contact ellipse eccentricity.
Software Description: The program is written in Fortran 4 for implementation on an IBM 370/165 under OS. 256K bytes of core storage are required.
Related documentation: PB-279 503/7.

Keywords: *Software, Antifriction bearings, *Creep properties, Roller bearings, Magnetic tapes.

Availability: NTIS, CP **T03,** mag tape. Source tape is in EBCDIC character set. Tapes can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions. Price includes documentation.

PB-285 468/5

Kalker's Simplified Nonlinear Creep Theory (Subroutine Forces).

Software. The conversion of the computer program, 'Simplified Theory of Rolling Contact', (used for calculation of a nonlinear creep force-creepage relationship) from the original Algol language to Fortran is considered. The Algol program was written by Professor J. J. Kalker and was derived from the paper, 'Simplified Theory of Rolling Contact,' Delft Progr. Rep., Series C: Mechanical and Aeronautical Engineering and Shipbuilding, 1 (1973), pp. 1-10. A significat number of changes was made in the program for more convenient use; however, the fundamental equations remain unchanged. The results were checked in detail to insure agreement with the original solution. The program gives an appropriate solution for the resultant tangential creep forces and spin moment acting between two bodies of equal linearly elastic material properties. The creep forces and spin moment are due to lateral, longitudinal, and spin creepages. Assumptions corresponding to the Hertz contact theory are implied and two additional simplifying assumptions are made, resulting in a significant reduction in computation time as contrasted with previous solutions. Two separate computer codes were developed, the first being the general solution with extended input and output, and the second a shortened version primarily intended for use as a subroutine.
Software Description: The program is written in Fortran 4 for implementation on an IBM 370/165 under OS. 256K bytes of core are required.
Related documentation: PB-279 503/7.

Keywords: *Software, Antifriction bearings, *Creep properties, Roller bearings, Magnetic tapes, Subroutines, *FORCES subroutine.

Availability: NTIS, CP **T03,** mag tape. Source tape is in EBCDIC character set. Tapes can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions. Price includes documentation.

PB-299 312/9

Kalker's 'Exact' Nonlinear Creep Theory.

Software. The conversion of the computer program, A Programme for Three-Dimensional Steady State Rolling developed by Professor J. J. Kalker, from the original Algol language to Fortran is considered. This program determines the resultant creep forces and moment for steady state rolling of two bodies of equal or unequal linearly elastic material properties. A related manual for Kalker's 'Simplified Theory of Rolling Contact' is considered in the report User's Manual for Kalker's Simplified Nonlinear Creep Theory, by James G. Goree and E. Harry Law, FRA/ORD-78/06 Contract DOT-OS-40018, December, 1977. The program considered in the present report concerns the same problem except for the extension to unequal materials. It is found that, for equal materials, the Simplified Theory gives approximately the same results as the exact solution in most cases and in those instances where some difference was noted, the simplified theory appears to be in better agreement with experimental results. In addition, the simplified theory reduces the computation time by a factor of approximately 50 to 100.
Software Description: The Program is written in the Fortran IV programming language for implementation on a IBM system 370 G1 Compiler using the HASP operating system. 448K bytes of core storage are required to operate the model.
Related documentation: PB-279 503/7.

Keywords: *Software, *Creep properties, Fortran, Conversion, Rolling contact loads, Moments.

Availability: NTIS, CP **T03,** mag tape. Source tape is in EBCDIC character set. Tapes can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and

parity. Call NTIS Computer Products if you have questions. Price includes documentation.

PB81-194748

Chemical Substances Information Network Pre-Prototype Intelligent Terminal System.

For complete citation, see 12 **Library and Information Sciences.**

5. CIVIL AND STRUCTURAL ENGINEERING

AD-A056 226/4

The Building Loads Analysis and System Thermodynamics Program (BLAST). Release Number 1.

For complete citation, see 8 **Energy.**

AD-A102 492/6

CALCOMP Preview System

Software. The CALCOMP Preview System enables a user to evaluate the contents of a CALCOMP generated plot file by displaying a similar image on the Tektronix 4014 graphic display terminal.
Software Description: The system is written in Fortran and AIC for implementation on IBM 360 and PDP 11/70 computers. Memory requirements are 35K (PDP) and 250K (IBM).
Related documentation: AD-A102 492, AD-A102 493.

Keywords: *Software, Magnetic tape, *Display devices, *Computer graphics, Graphics, Digital computers, Reels, Images, Fortran, *Interactive graphics, Preview systems, Physical records, Graphics terminals, Logical records, Plot files, Tape reels, Character sets.

Availability: NTIS, CP **T05,** mag tape. Source tape is in EBCDIC character set. Tapes can be prepared in most standard 7 or 9 track recording modes for 1/2 inch tape. Identify recording mode desired by specifying character set, track, density and parity. Call NTIS computer products if you have any questions. Price includes documentation.

AD-780 357/0

Computer Simulation of Hard Rock Tunneling Program.

Models-simulation. This is the magnetic tape containing computer programs listed in Volume 2 of the final technical report generated under contract H0110238. A computer model of the overall hard rock tunneling process which considers both performance and costs of the operation was developed. Segments of the tunneling process modeled include geology, fragmentation methods, muck removal, ground support, and environmental considerations. A three-dimensional stratified geology model, functions as a data file to represent geological conditions in the area surrounding the tunnel. The user has a choice of simulating rock fragmentation by drill and blast, boring machine, high velocity water jet, and projectile impact. He may also simulate either rail, truck, or conveyor belt haulage systems. Steel sets, shotcrete, and rock bolts are offered as a choice of ground support methods. Environmental factors considered include water removal, ventilation, and cooling. A cost accounting system is incorporated to provide cost-benefit analysis of tunneling system performance.
Software Description: The model is written in FORTRAN for implementation on a CDC 6600.
Related documentation: AD-763 565/9, AD-763 564/2, AD-763 563/4.

Keywords: *Models-simulation, *Construction, *Underground structures, *Computerized simulation, Magnetic tape, Tunneling, Geological survey, *Rock mechanics, Fragmentation, Earth-handling equipment, Costs, Fortran, Civil engineering, *Hard rock tunneling, Material control, Benefit cost analysis.

Availability: NTIS, CP **T06,** 1 reel. Availability: Specify tape recording mode desired: 7 track, Bcd or 9 track, Ebcdic. Price includes documentation.

PB-182 557/9

MAIN 1, A System of Computerized Models for Calculating and Evaluating Municipal Water Requirements.

Models-simulation. The item is comprised of two files. One contains the Library of Water Usage Parameters which is a listing of the equation constants, coefficients, and environmental data used in making the calculations of water usage. The second magnetic tape contains the Main I processor, which is the Fortran 4 computer program that accepts the input data and inputs from the library, performs the calculations and generates the water usage reports. The Main I System with minor program modifications could be run on other computers comparable in size to the IBM 360/40. In connection with the development of the system, it was found that about one man-month of effort was required to collect and prepare the input data. Actual running times for the system were about three minutes on the Univac 1108 and eight minutes on a IBM 360/50, per city.
Software Description: Program is written in the Fortran 4 programming language for implementation on either an IBM 360, model 40 or higher, or a Univac 1108 computer. The minimum memory size is 120k bytes of core on the IBM 360 or 20k words on the Univac.
Related documentation: PB-182 556/1, PB-182 555/3.

Keywords: *Models-simulation, *Water supply, *Computer programs, Requirements, *Urban planning, Mathematical models, Water use, Water management.

Availability: NTIS, CP **T05,** 2 reels mag tape. Specify tape recording mode desired: 7 track, Bcd or 9 track, Ebcdic. Price includes documentation.

PB-183 537/0

'Bounds to Bending Frequencies of Non-Uniform Shafts, and Applications to Missiles'.

Software. Non-uniform shafts can be used as models for the analysis of missile vibrations. Digital programs that can calculate the upper and lower

bounds to frequencies of bending vibration of such free, non-uniform shafts and can accept input data in standard engineering units have been developed. How the programs are used (i.e., input/output data packages), underlying theory and its application to the programs, a description of the programs themselves, and the principal subroutines of the programs are presented. Fortran listings for both upper and lower bounds, along with sample printouts of both, are included. Improvements over other existing programs, offered by these programs are that they: (1) given upper and lower bounds that bracket the true frequencies, (2) are computationally fast and accurate, (3) can handle a large number of non-uniformities, and (4) can be easily extended to handle shafts that have more complicated variations of stiffness and mass than those presented.
Software Description: The program is written in the FORTRAN programming language for implementation on an IBM 360/40 computer using the DOS programming language.
Related documentation: AD-669 997, PB-183 536.

Keywords: *Software, *Guided missiles, *Bending, Subroutines, Bending frequencies.

Availability: NTIS, CP **T03,** 1966 cards*. Price includes documentation. Specify tape recording mode desired.

PB-192 420/8

Forecasting Municipal Water Requirements, Library Tape.

Models-simulation. Methods for estimating municipal water requirements and for forecasting the values of municipal water use parameters have been combined to form a comprehensive forecasting method, called the Main II System. The file contains the Library of Water Use Coefficients used in the Implementation of the Main II System.
Software Description: The program is written in the FORTRAN IV programming language for implementation on an IBM 360 or a UNIVAC 1108 computer.
Related documentation: PB-190 276/6, PB-190 275/8.

Keywords: *Models-simulation, *Water supply, Forecasting, Mathematical models, Requirements, *Urban planning, Water management, Main II computerized system, Water use.

Availability: NTIS, CP **T03,** 1 reel mag tape. Specify tape recording mode desired: 7 track, Bcd or 9 track, Ebcdic. Price includes documentation.

PB-192 421/6

Forecasting Municipal Water Requirements, System Tape.

Models-simulation. Methods for estimating municipal water requirements and for forecasting the values of municipal water use parameters have been combined to form a comprehensive forecasting method, called the Main 2 System. The tape contains the Fortran 4 IBM 360/Univac 1108 computer program developed to implement the Main 2 System.
Related documentation: PB-190 276/6, PB-190 275/8.

Keywords: *Models-simulation, *Water supply, Mathematical models, Computer programs, Forecasting, Requirements, *Urban planning, Water management, Main II computerized system, Water use.

Availability: NTIS, CP **T03,** 1 reel mag tape. Specify tape recording mode desired: 7 track, Bcd or 9 track, Ebcdic. Price includes documentation.

PB-192 422/4

MAIN C: Computerized Methodology for Evaluation of Municipal Water Conservation Research Programs. System Tape.

Models-simulation. A Fortran 4 IBM 360/Univac 1108 computer model was developed which estimates the influence of proposed water conservation devices, processes, or practices on the water requirements of an urban area, including the economic impact on the water supply utility. The file contains the program developed to implement this model.
Related documentation: PB-190 278/2, PB-190 277/4.

Keywords: *Models-simulation, *Water supply, Mathematical models, Computer programs, Water conservation, *Urban planning, Water management, MAIN C computerized system.

Availability: NTIS, CP **T03,** 1 reel mag tape. Specify tape recording mode desired: 7 track, Bcd or 9 track, Ebcdic. Price includes documentation.

PB-192 423/2

Main C: Computerized Methodology for Evaluation of Municipal Water Conservation Research Programs. Library Tape.

Models-simulation. A computer model was developed which estimates the influence of proposed water conservation devices, processes, or practices on the water requirements of an urban area, including the economic impact on the water supply utility. The file contains the Library of Detail Utilization Factors required in this analysis.
Software Description: These programs are written in the Fortran 4 programming language for implementation on the IBM 360 and the Univac 1108 computers.
Related documentation: PB-190 278/2, PB-190 277.

Keywords: *Models-simulation, *Urban planning, *Water supply, Economic factors, Water conservation, *Mathematical models, Mathematical prediction, Economic impact prediction, Main C computerized system, Water use.

Availability: NTIS, CP **T03,** 1 reel mag tape. Specify tape recording mode desired: 7 track, Bcd or 9 track, Ebcdic. Price includes documentation.

PB-229 865/1

A Computer Program for Estimating Costs of Tunneling (COSTUN).

Software. A computer performs all logic and computations customarily done by hand in preparation of engineer's estimates or contractor's bid on tunnel-shaft systems. The program described is based on

construction methods, works forces and equipment selections corresponding to the current state-of-the-art of tunneling. The program contains logic to permit the estimate of costs of complicated tunnelshaft systems. In any estimate, the program will accommodate a large number of values or changes in the values of the factors that affect costs, such as tunnel shape and size, shaft depth, ground characteristics, and construction method. To provide great flexibility, the user of the program is provided with the option of selecting lining type and thickness, profit and overhead margins, and other input data. Suggestions for selecting an appropriate value for these inputs are contained in the report.

Software description: The program is written in the Fortran programming language for implementation on a IBM 360.

Related documentation: PB-228 740/7.

Keywords: *Software, *Tunneling(Excavation), *Engineering costs, COSTUN computer program.

Availability: NTIS, CP **T05,** 1 reel mag tape. Source tape is in EBCDIC character set. Tapes can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density and parity. Call NTIS Computer Products if you have questions. Price includes documentation.

PB-232 796/3

Culvert Outlet Protection Design: Source Program, Sample Date, and Sample Output

Software. This computer program is capable of estimating the scour extent at culvert outlets and designing both rigid and rock riprapped stilling basins. It provides protection for the local scour problem only and not the gully scour situation. The computer program was developed in a modular framework to facilitate the addition of new design methods that may be implemented in the future.

Software Description: This is a Fortran 4 program written for implementation on an IBM s/370 with the Disk Operating System (DOS). The minimum core requirement is 92k bytes.

Related documentation: PB-232 795/5.

Keywords: *Software, *Culverts, *Scouring, *Computer programs, Erosion, Riprap, Highway planning, Check structures, Stilling basins, Water erosion, Magnetic tapes, Computer aided design, FORTRAN 4 programming language.

Availability: NTIS, CP **T03,** 1 reel mag tape*. Specify tape recording mode desired: 7 track, Bcd or 9 track, Ebcdic. Price includes documentation.

PB-233 777/2

DAMS2, Project Formulation - Structure Site Analysis,

Software. The Dams2 computer program is used to evaluate site alternative combinations of dam storage volume, emergency spillway width, depth, and principal spillway capacity. Inputs include site storage characteristics and storm volume, frequency, duration, and distribution. The program uses the sites' storage-discharge capacities to floodroute inflow hydrographs through a potential reservoir. Storage and discharge capacity may be computed by the program or loaded as input data. Inflow hydrographs may be actual or developed from any storm rainfall distribution.

Software Description: Program written in Fortran 4 with selected routines coded in Alc.

Related documentation: PB-233 776/4.

Keywords: *Software, *Dams, *Structural analysis, Computer programs, Fortran 4 programming language, Storm volume, DAMS 2 computer program, *Water supply.

Availability: NTIS, CP **T03,** 1 reel mag tape. Specify tape recording mode desired: 7 track, Bcd, or 9 track, Ebcdic. Price includes User's Guide.

PB-233 779/8

Project Formulation - Hydrology, Computer Program.

For complete citation, see 15 **Natural Resources and Hydrology.**

PB-233 781/4

ECON2 - Project Formulation - Economics,

Software. The Econ2 floodwater damage program will compute the average annual damages to crops and pasture, other agriculture, road and bridge, urban, etc., where floodwater damages can be related to flood depths or elevations. This is an adaptation of the latest version of the Central Technical Unit's Economics Program (Econ-2, dated 3/14/68) and is limited to (a) the frequency evaluation method (b) damages related to depth of flooding, and (c) a maximum of 10 flood events. The number of reaches may vary from 1 to 100 and a maximum of 120 cross sections per run. If it is necessary to use the historical evaluation of duration method, the IBM 360 Central Technical Unit program must be used.

Software Description: The program is written in Fortran 4, with some subroutines written in assembly language. The original program was written for implementation on an IBM 360 or 1130.

Related documentation: PB-233 780/6.

Keywords: *Software, *Computer programs, *Damage assessment, Flooding, *Flood damage, Fortran 4 programming language, ECON2 computer program, Magnetic tapes, *Economic analysis.

Availability: NTIS, CP **T03,** 1 reel mag tape. Specify tape recording mode desired: 7 track, Bcd, or 9 track, Ebcdic. Price includes User's Guide.

PB-251 327/3

Economic Impact of Fiscal Constraints on Water Project Construction.

For complete citation, see 2 **Business and Economics.**

PB-260 750/5

WSP2 - Water Surface Profile Computer Program.

For complete citation, see 15 **Natural Resources and Hydrology.**

Field 5—CIVIL AND STRUCTURAL ENGINEERING

PB-265 555/3

WATSIM - A Fortran Program for 24 Hour Simulation of Flows and Reservoir Fluctuations in Water Distribution Networks.

For complete citation, see 15 **Natural Resources and Hydrology.**

PB-265 556/1

Prototype Software for On-Line Storage Forecasting Supported by Load Forecasting and Reduced System Representation for Water Distribution Systems.

For complete citation, see 15 **Natural Resources and Hydrology.**

PB-267 167/5

NBSLD (National Bureau of Standards Load Determination), The Computer Program for Heating and Cooling Loads in Buildings. Release No. 1.

Software. A comprehensive computer program called NBSLD, the National Bureau of Standards Load Determination program, has been developed at NBS to reflect the time change of the many building parameters which are pertinent to accurate estimation of energy usage for heating and cooling. Current status of heating and cooling load techniques is reviewed. Of general interest are unique features of NBSLD which are not available in existing computer programs. A summary of various subroutines of NBSLD is given along with the detailed procedures for them. These subroutines constitute the recommended subroutine algorithms of the ASHRAE Task Group on Energy Requirements. Complete Fortran listing of NBSLD and data preparation forms are given for those who wish to use the program. The NBSLD computation is on the basis of the detailed solution of simultaneous heat balance equations at all the interior surfaces of a room or space. Transient heat conduction through exterior walls and the interior structures is handled by using conduction transfer functions. The use of heat balance equations, although time consuming in calculation, can avoid the vagueness and uncertainties inherent in the more popularly used weighting factor approach. In addition, it is more accurate for a specific building design.

Software Description: The program is written in the FORTRAN programming language for implementation on a UNIVAC 1108 computer using the UNIVAC 1100 Exec 8, version 33, operating system. 250K of core storage are required to operate the program.

Related documentation: PB-267 169.

Keywords: *Software, *Heating load, *Cooling load, Computer programs, *Buildings, FORTRAN, Conduction, Heat transmission, Heat balance, Transfer functions, Time dependence, Design, Energy requirements, Magnetic tapes, NBSLD computer program.

Availability: NTIS, CP **T06,** mag tape*. Source tape is in EBCDIC character set. Tape(s) can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions. Also available as 9-track ASCII.

PB-267 168/3

NBSLD (National Bureau of Standards Load Determination), The Computer Program for Heating and Cooling Loads in Buildings. Release No. 1.

Software. A comprehensive computer program called NBSLD, the National Bureau of Standards Load Determination program, has been developed at NBS to reflect the time change of the many building parameters which are pertinent to accurate estimation of energy usage for heating and cooling. Current status of heating and cooling load techniques is reviewed. Of general interest are unique features of NBSLD which are not available in existing computer programs. A summary of various subroutines of NBSLD is given along with the detailed procedures for them. These subroutines constitute the recommended subroutine algorithms of the ASHRAE Task Group on Energy Requirements. Complete Fortran listing of NBSLD and data preparation forms are given for those who wish to use the program. The NBSLD computation is on the basis of the detailed solution of simultaneous heat balance equations at all the interior surfaces of a room or space. Transient heat conduction through exterior walls and the interior structures is handled by using conduction transfer functions. The use of heat balance equations, although time consuming in calculation, can avoid the vagueness and uncertainties inherent in the more popularly used weighting factor approach. In addition, it is more accurate for a specific building design.

Software Description: The program is written in the FORTRAN programming language for implementation on a UNIVAC 1108 computer using the UNIVAC 1100 Exec 8, version 33, operating system. 250K of core storage are required to operate this program.

Related documentation: PB-267 169.

Keywords: *Software, *Heating load, *Cooling load, Computer programs, *Buildings, FORTRAN, Conduction, Heat transmission, Heat balance, Transfer functions, Time dependence, Design, Energy requirements, Magnetic tapes, NBSLD computer program.

Availability: NTIS, CP **T06,** mag tape*. Source tape is in ASCII character set. Character set restricts preparation to 9 track one-half inch tape only. Identify recording mode by specifying density only. Call NTIS Computer Products, if you have questions. Price includes documentation, PB-267 169. Also available as 7-track BCD.

PB-275 384/6

Planar Pinned Truss Analysis

Software. This program uses the stiffness matrix method to compute joint translations, member axial loads, and structural reactions for planar pinned trusses having up to 40 joints and 80 members. A given truss may be analyzed for any number of loading cases.

Software Description: The program is written in the Fortran V programming language for implementation on a UNIVAC 1100/42 computer using the EXEC 8 version 32-R-2 operating system. The computer memory requirement is 36K.

Related documentation: PB-275 385/3.

Keywords: *Software, *Trusses, *Stiffness methods, Matrix methods, Loads(Forces), Computation.

Availability: NTIS, CP **T05**, mag tape. Source tape is in EBCDIC character set. Tape(s) can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired. Price includes documentation.

PB-276 574/1

Composite Beam Concrete and Steel Stresses

Software. This program is a composite beam check program. Presently the program is limited to the case of a uniformly distributed load and shored construction. A previously saved data file must be used to describe the problem to be analyzed.
Software Description: The program is written in Fortran for implementation on a UNIVAC 1100/42 under EXEC 8. 18K words of core storage are required.

Keywords: *Software, *Structural beams, *Stresses, Loads(Forces), Computation.

Availability: NTIS, CP **T05**, mag tape. Source tape is in EBCDIC character set. Tape(s) can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Price includes documentation.

PB-294 757/0

The Buffeting of Tall Structures by Strong Winds, Windload Program.

Software. A computer program is presented for the calculation of the along-wind response of tall buildings. The program represents an updated version of, and supersedes, a similar program developed by the authors in 1975. Program input includes building dimensions, natural frequencies, damping coefficients, modal shapes, and weight distribution, design wind speed, roughness of surrounding terrain, pressure coefficients on windward and leeward faces, and specific weight of air. The output consists of mean, rms, and peak deflections, and rms and peak accelerations.
Software Description: The program is written in the Fortran X for implementation on a Univac 1108 computer using the EXEC 8 operating system. 36K bytes core storage are needed to operate the system.

Keywords: *Software, *Buildings, *Wind pressure, Structural engineering, Mathematical models, Computer programming, Dynamic response, Gust loads, Fortran, Tall buildings.

Availability: NTIS, CP **T05**, mag tape*. Source tape is in EBCDIC character set. Tapes can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions.

PB-297 797/3

A Pavement Design and Management System for Forest Service Roads - Implementation.

Software. This tape is a computer program LVR (Low Volume Roads) which was developed at the University of Texas through a cooperative agreement with the U.S. Forest Service, and computes the most economical pavement designs for an asphaltic concrete, bituminous surfaced, or aggregate-surfaced roads, given certain requirements specified by the user. These requirements include the desired pavement life, constraints regarding the cost of initial construction, the frequency of rehabilitation, traffic volumes, and others, as defined by the complete list of required input variables. The 'most economical designs' are considered to be those whose total costs on a net present value basis at the time of construction are smallest. The total cost includes the cost of initial construction, major rehabilitation, regularly scheduled seal coats for asphalt roads and grading for aggregate-surfaced roads, minor maintenance, and user-delay costs associated with rehabilitations. Additionally, the program will calculate the vehicle operating cost if specified by the user. The program was written in Fortran IV and has been run on both UNIVAC 1100-42 and CDC 6600 machines. Some commonly available extensions of standard Fortran are used. A version of this program was successfully modified to run on an IBM 370. Primarily, this entailed changing certain storage areas from six characters per word to four characters per word. Currently, the memory (field length) requirements of the CDC 6600 for loading are 72300 (octal) words and 56300 words for running.
Software Description: This program is written in Fortran programming language for implementation on a UNIVAC computer using the Exec 8 operating system. 30K bytes of core storage are required to operate the model 1100/42.
Related documentation: PB-297 798, PB-297 799.

Keywords: *Software, *Access roads, *Forest land, *Pavements, Design criteria, Project planning, Management systems, Flexible pavements, Service life, Surface finishing, Computer programs, LVR computer program, Sensitivity analysis.

Availability: NTIS, CP **T04**, mag tape. Source tape is in EBCDIC character set. Tapes can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions. Price includes documentation.

PB80-111560

HUD Residential Solar Viability Program (RSVP/2): Computer Tape.

For complete citation, see 8 **Energy.**

PB80-148398

DOE-2 Building Energy Use Analysis Program.

For complete citation, see 8 **Energy.**

PB80-224975

Construction Management Control System.

Software. The Construction Management Control System is currently in use on many large construction projects owned or managed by the General Services Administration. The system is designed to generate, control and utilize construction data for the effective management of large construction projects.

The CMCS system is a three module system dealing with scheduling, financial planning, and purchase order control. Each of these modules and their associated files operate independently of the other two, allowing the user to select the CMCS applicaton that is appropriate for his requirements. The installation instructions are limited to specific discussions of the CMCS scheduling and financial planning modules with only general reference to the purchase order control module system, also contained on the tape. The computer configuration required to process the CMCS package depends upon the specific applications selected and the size of the project to be monitored. The scheduling system supplied on the tape is capable of processing up to 15,000 work items, and functions most efficiently at the 13,000 work item level.
Software Description: The system is written in the COBOL and FORTRAN programming languages for implementation on an IBM 360/370-145 computer using the OS/VS operating system. 800K bytes of core storage are required to operate the model.
Related documentation: PB80-224983.

Keywords: *Software, *Construction management, *Management information systems, Purchasing, Financial management, Project management, Scheduling, Computer programming, Contract administration, Magnetic tapes.

Availability: NTIS, CP **T10,** mag tape*. Source tape is in EBCDIC character set. Tapes can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions. Price includes documentation.

PB81-151052

DWOPER: The National Weather Service Operational Dynamic Wave Model.

Models-simulation. The National Weather Service DWOPER Model is a generalized, dynamic wave flood routing model developed for use on river systems where storge routing methods are inadequate due to the effects of backwater, tides, and mild channel bottom slopes. The model is based on the complete one-dimensional St. Venant equations. DWOPER is designed to accommodate various boundary conditions and irregular cross-sections located at unequal distances along a single multiple-reach river. It allows for roughness parameters to vary with location and stage or discharge. Temporally varying lateral inflows, wind effects, bridge effects, off-channel storage, weir-flow channel bifurcations, and levee overtopping are included among its features.
Software Description: The model is written in the Fortran programming language for implementation on an IBM 360/195 computer using the OS/MVT release 21.8F operating system. The computer memory requirement is 290K (for a 'G' type compiler. More core required for an 'H' type compiler.)
Related documentation: PB81-151060.

Keywords: *Models-simulation, *Flood routing, Mathematical models, Rivers, Wind(Meteorology), Surface roughness, Slope, Bridges, Weirs, Levees, Magnetic tapes, *DWOPER model.

Availability: NTIS, CP **T05,** mag tape. Source tape is in EBCDIC character set. Tapes can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Specify recording mode desired. Call NTIS Computer Products if you have questions. Price includes documentation.

PB81-183212

DOE-2 Building Energy Use Analysis Program (IBM Machine Version).

Software. DOE-2 is a public-domain computer program for energy use analysis of residential and commercial buildings. DOE-2 calculates the hour-by-hour energy use of a building and its life-cycle cost of operation given information on the building's location, construction, operation, and heating, ventilating and air conditioning equipment. It was developed by Lawrence Berkeley Laboratory, in collaboration with Los Alamos National Laboratory. The work was supported by the U.S. Department of Energy, Office of Conservation and Solar Applications, Division of Buildings and Community Systems, Architectural and Engineering Systems Branch. Applications: DOE-2 can be used for (1) the design of energy-efficient new buildings; (2) analysis of existing buildings for energy-conserving modifications; and (3) calculation of design energy budgets. It is intended for architects and engineers with a basic knowledge of the thermal performance of buildings. DOE-2.1 is the computer program which has been selected as part of the SET (Standard Evaluation Technique) of the new proposed Federal BEPS (Building Energy Performance Standards).
Software Description: The program is written in the FORTRAN and Building Design Language programming languages for implementation on an IBM 360/370/303X computer using the OS operating system.
Related documentation: PB80-148380(w/binders), PB80-209307(w/out binders).

Keywords: *Software, *Buildings, Space heating, Air conditioning, Ventilation, Heating load, Cooling load, Thermal efficiency, Magnetic tapes, Energy analysis, DOE-2 computer program, *Energy consumption, Energy audits, Energy conservation, Life-cycle cost.

Availability: NTIS, Mag Tape $525.00, mag tape*. Source tape is in EBCDIC character set. Character set restricts preparation to 9 track, one-half inch tape only. Identify recording mode by specifying density only. Call NTIS Computer Products if you have questions. Documentation available.

PB81-184673

Workload Control and Tape Library Maintenance

For complete citation, see 7 **Computer Sciences.**

PB81-217408

Irrigation Water Management and Conservation Program (MINI-80).

For complete citation, see 17 **Miscellaneous.**

PB81-217424

Road Design System (RDS).

Software. RDS is used by the Forest Service nationwide for design of forest roads. It is suited for design

of low standard single lane, dirt roads that follow the terrain. However, it can also be used for double lane paved roads. It consists of about 235 subroutines. There are 30 main overlays which perform a portion of the road design process. The program RDS is the main driver of all the other overlays.
Software Description: The program is written in Fortran programming language for implementation on a UNIVAC 1183 computer using the EXEC8 Level 36 operating system. 50K bytes of core storage are required to operate the model.
Related documentation: PB81-217432.

Keywords: *Software, Roads, Computer programs, Rural areas, Design, Embankments, Computer graphics, Magnetic tapes, Fortran, Earthwork, *Road design, *Highway planning, NTISAGFS.

Availability: NTIS, CP **T08,** mag tape. Source tape is in EBCDIC and FIELDATA character sets. Tapes can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions. Price includes documentation.

6. COMMUNICATIONS

AD-A019 001/7
Roll Plane and Bent Plate Programs. Release No. 1

Software. This tape contains two source computer programs. They are named the Roll Plane and Bent Plate Programs. The Roll Plane program can be used to predict an antenna radiation pattern for a fuselage mounted antenna. The aircraft's fuselage, wings and horizontal stabilizers can be modeled in the program. The Bent Plate program can be used to show the electromagnetic scattering effects from a flat or bent plate. One antenna or an array of antennas can be mounted near the plate. Both programs will compute information necessary for antenna pattern plots. If the plots are desired, a magnetic tape drive is necessary to run the program. The generated tapes from these programs can be used on a California Computer Products, Inc's CALCOMP pen plotter, model 763 to produce the desired antenna patterns.
Software Description: These programs were written in the FORTRAN programming language for implementation on a CDC 6600 computer using the SCOPE 3.3 operating system.
Related documentation: AD-777 975/4, AD-777 976/2, AD-777 977, AD-777 989/5.

Keywords: *Software, *Antenna radiation patterns, Aircraft antennas, High frequency, Predictions, Electromagnetic scattering, Reflection, Diffraction, Airframes, Magnetic tape, Roll plane computer program, Bent plate computer program.

Availability: NTIS, CP **T04,** 2400 ft. Availability: Available in 9 track, 800/1600 ASCII character code, odd parity only. Price includes documentation.

AD-A075 395/4
Propagation Correction (PPC) Model Computer Program.

For complete citation, see 17 **Miscellaneous.**

AD-A102 391/0
Honeywell H6000 Generalized Monitor Facility

For complete citation, see 7 **Computer Sciences.**

AD-767 069/8
Teleconferencing Networks

Software. The system represents three methods of group communication using computer terminal as the vehicle for conducting a group discussion. The system that provides these methods was developed by OEP for a UNIVAC 1108 as a convenient form of communication among geographically dispersed individuals and/or as an adjunct to oral communications. Completely normal language is used. Use of the computer permits maintaining a written record automatically and allowing discussions in which participants need not talk and listen in synchronism (in contrast to conventional meetings and telephone conference calls). In two of the methods, the discussants need not even be participating simultaneously. Several other useful features are offered in order to facilitate group solution to problems when that is the conference objective. The system is simple to use and is relatively inexpensive for groups that already possess the necessary computer time-sharing facilities. The methods are 'Party-Line', 'Discussion', 'Conference'. Any of these conference systems may be used in a DELPHI (anonymous) mode by having users specify code names instead of real names. (Modified author abstract)

Keywords: *Software, Communication systems, Management engineering, Data processing systems, Magnetic tape, Telephone communication systems, Teleconferencing, Data processing terminals, On line systems, Delphi technique, *Telecommunication.

Availability: NTIS, CP **T10,** mag tape. Availability: Specify tape recording mode desired: 7 track, 556 and 800 BPI, odd and even parity; or 9 track, 800 BPI, odd parity.

PB-241 628/7
FCC Coordination Contour Program for Domestic Satellite Earth Stations.

Software. This is a computer program for the calculation of the coordination contour around an international or domestic satellite earth station. It is a modification of a program written by the Department of Commerce, Office of Telecommunications, with modifications to meet the needs of users throughout the telecommunications industry. The program is a computerization of the procedure outlined in Appendix 28 of the Final Acts of the World Administrative Radio Conference for Space Telecommunications (WARC-ST), which regulates the international coordination of an earth station, and of the similar procedure outlined in Part 25 of the FCC Rules and Regulations, which regulates the domestic coordination of an earth station.
Software Description: This program was written in the FORTRAN V programming language for initial implementation on a UNIVAC 1106 computer using the EXEC 8 operating system. It requires less than 50k words of core memory for use on the UNIVAC

1106. It consists of one main program, nine subroutines and three functions.
Related documentation: PB-240 199/0.

Keywords: *Software, Radio relay stations, Computer programs, Communication satellites, Radio relay systems, Coordination, Fortran, Magnetic tapes, *Radio broadcasting, Communication satellite terminals, *Spacecraft communication, COORD computer program.

Availability: NTIS, CP **T03,** 1 reel mag tape. Specify tape recording mode desired: 9 track, 800 or 1600bpi, odd parity, Ebcdic; or 7 track, 556 or 800bpi, odd or even parity, Bcd. Also available as punched cards. Price includes User's Guide.

PB-251 129/3

TV and FM Broadcasting Field Strength (TVFMFS) Computer Program.

Software. This program is a computer version of the TV and FM Broadcasting field strength curves found in part 73 of the Federal Communications Commission's Rules and Regulations. The magnetic tape containing this program contains three files: The main program, a curve fitting subroutine, and a test deck.
Software Description: The program is written in the FORTRAN V programming language for implementation on a UNIVAC 1106 computer.

Keywords: *Software, *Radio broadcasting, *Television broadcasting, Computer programs, Fortran, Frequency modulation, Field strength, Radio transmission, Magnetic tapes, TVFMFS computer program.

Availability: NTIS, CP **T03,** 1 reel mag tape. Source tape is in EBCDIC character set. Tape can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions. Price includes documentation.

PB-260 426/2

RADIAT Computer Program.

Software. Radiation patterns are calculated for standard broadcast (AM) stations, including theoretical, standard, modified standard, stability and reradiation patterns. Also, included are related calculations such as RMS studies, nearfield studies, and computation of mutual impedances. Results of some intermediate calculations may also be printed. Limitations - maximum of 20 towers 50 augmentations; both can be easily changed. Known error - incorrect results for modified standard (augmented) pattern special angles will result if the first vertical angle is not on the horizontal.
Software Description: The program is written in the FORTRAN V programming language for implementation on a Honeywell 6023 computer using the GCOS operating system. 168K bytes of storage are required to operate the program.
Related documentation: PB-260 427.

Keywords: *Software, *Antenna radiation patterns, *Radio broadcasting, Radio stations, Computer programs, *Directional antennas, Amplitude modulation, Computations, Fortran, Magnetic tapes, *RADIAT computer program.

Availability: NTIS, CP **T05, mag tape***. Source tape is in EBCDIC character set. Tape(s) can be prepared in 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, tract, density, and parity. Call NTIS Computer Products if you have questions. Price includes documentation.

PB-260 862/8

The Telecommunication/Data Management System (TCDMS) IBM Assembly Language Computer System Magnetic Tape, Release No. 3.

Software. This tape contains Release No. 3 of the USAC Municipal Telecommunications Data Management System (TCDMS) module of the Lane County Integrated Municipal Information System (IMIS). Release No. 3 supersedes Release No. 2. Release No. 3 contains a significantly enhanced telecommunications system and also contains the Data Management System. The purpose of this module is to act as an interface between the IBM computer operating system and applications programmers and/or terminal operators. It consists of two major components: (1) a set of telecommunications modules which control the processing of all transactions through the TCDMS network of terminals, and (2) a set of data management modules which control placement, manipulation, and retrieval of the information stored in the TCDMS integrated data base.
Software Description: The module is written in the Assembly programming language for implementation on an IBM 360/370 computer using the OS or VS1 operating system. The computer memory requirement is 256K.
Related documentation: PB-233 730, PB-233 731, PB-241 444, PB-241 447, PB-241 448, PB-242 241, PB-250 992, PB-250 993, PB-250 994, PB-250 995, PB-251 073, PB-251 133, PB-251 134, PB-251 346, PB-251 886, PB-251 887, PB-251 896, PB-251 897.

Keywords: *Software, *Local government, *Telecommunication, *Information systems, Counties, Oregon, Magnetic tapes, Man machine systems, Telecommunications data management systems, USAC project, Lane County(Oregon), Integrated municipal information systems.

Availability: NTIS, CP **T08,** mag tape*. Source tape is in EBCDIC character set. Character set restricts preparation to 9 track one-half inch tape only. Identify recording mode by specifying density only. Call NTIS Computer Products, if you have questions. Price includes documentation.

PB-297 874/0

NIH Telephone Service Directory and Information Locator System.

For complete citation, see 12 **Library and Information Sciences.**

PB81-100430

Communication System Performance Model for VHF and Higher Frequencies.

Software. Communication system designers and engineers often must decide whether to use design-aid models not well suited to the problem at hand or to perform many tedious and laborious hand calculations which, coupled with certain 'rules of thumb', provide an estimate of system performance. The model documented in this report provides relief from

such problems. For communication systems which operate at VHF and higher frequencies, the character of the terrain between the transmitting and receiving antennas, as well as the heights of the antennas above immediate terrain, will affect significantly the attenuation of the radio signals. The model reported herein considers these terrain influences, along with other commonly considered influences, by automatically accessing digitized topographic data files to develop the path data needed to compute the basic transmission loss. Computation of the basic transmission loss is accomplished using the Longley-Rice formulation for point-to-point paths. The statistical character of the basic transmission loss results from long-term fading (time availability), path to path differences (location variability), and prediction confidence considered in the model.
Software Description: The model is written in the Fortran programming language for implementation on a CDC 64/65/6600 model computer using the NOS/NOS-BE operating system. The computer memory requirement is 120K.
Related documentation: AD-A049 174.

Keywords: *Software, Radio communication, Systems engineering, Computerized simulation, Radio transmission, Magnetic tapes, Transmission loss, Very high frequencies, Ultrahigh frequencies, Microwave frequencies, Computer aided design, *Radio broadcasting.

Availability: NTIS, CP **T10**, mag tape. Source tape is in ASCII character set. Character set restricts preparation to 9 track, one-half inch tape only. Identify recording mode by specifying density only. Call NTIS Computer Products if you have questions. Price includes documentation.

PB81-182925

Arsbuild - Teletype Report Optimizer.

Software. This module builds a file for ARS (advanced records system) transmission to facilities using a Western Union DT300 teletype (or equivalent having facilities to recognize tab clear, tab set and tab characters). Arsbuild will build teletype headers, provide teletype control characters, set horizontal tabs and eliminate trailing and imbedded blanks within report lines. A WTO message gives a measure of the net reduction of characters for transmission. The number of characters in the daily columnar report produced by the cost accounting system have been reduced by 48%. Arsbuild can also facilitate transmission of a single message to multiple stations. It was also written to eliminate the need of Cobol programs using hexadecimal teletype control characters thus easing the burden of creating and maintaining ARS reports.
Software Description: This subroutine is written in ALC (assembly language) for implementation on IBM 360/370 computers using the OS MVT (21.8) operating system. 20K bytes of core storage are required by the routine.

Keywords: *Software, Computer programming, *Data transmission, Magnetic tapes, *Telecommunication.

Availability: NTIS, CP **T03**, mag tape. Source tape is in EBCDIC character set. Tapes can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions.

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AD-A024 912/8

COBOL Compiler Validation System, 1968. Version 6.2 (Tape)

Software. The COBOL Validation System is used to validate COBOL compilers and to insure their conformance to the Federal Standard as prescribed in FIPS PUB 21. The system consists of a comprehensive set of audit routines, their related data, and an executive routine which prepares the audit routines for compilation in a particular hardware/operating system environment. Each audit routine is a COBOL program which includes several tests and supporting procedures indicating the result of the tests. The executive routine provides a method for resolving implementor names within the source COBOL programs. The executive routine also provides the user with a means for updating source programs and generating the operating system control cards required.
Related documentation: AD-A024 913, AD-A025 889.

Keywords: *Software, *Compilers, Validation, Programming languages, Magnetic tape, Audit routines, Cobol compiler validation system, Proving.

Availability: NTIS, CP **T10**, 1 reel. Source tape is in EBCDIC character set. Tape can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density and parity. Call NTIS Computer Products if you have questions. Price includes documentation.

AD-A024 914/4

HYPO-COBOL Compiler Validation System (HCCVS) - Population File (Tape) Release 1.0

Software. HYPO-COBOL is a proper subset of the full American National Standard Programming Language COBOL as defined in ANSI X3.23-1974. It is oriented toward a compiling system which need not place heavy demands on its environment in terms of time and space and provides functional capability above and beyond the minimum definition of COBOL. Most of the elements selected for inclusion in HYPO-COBOL are required in any implementation of a low-level COBOL compiler as defined in FIPS PUB 21-1. However, HYPO-COBOL is not a proper subset of low-level COBOL in that (1) it does not contain all elements of low level COBOL, and (2) does contain selected elements from higher levels of COBOL.
Software Description: This software is machine independent.
Related documentation: AD-A024 915/1, AD-A024 916/9.

Keywords: *Software, *Compilers, Validation, Standards, Specifications, Magnetic tape, Minicomputers, Time sharing, Programming languages, *Cobol, HYPO-COBOL programming language, Audit routines.

Availability: NTIS, CP **T04**, 1 reel. Source tape is in EBCDIC character set. Tape can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density and parity. Call

NTIS Computer Products if you have questions. Price includes documentation.

AD-A027 780/6

Dynamic Scheduling and Environmental Control System. Release No. 1.

Software. This system allows the user to dynamically schedule externally, as well as internally, the processing of jobs within any type of ADP environment. It will perform the primary functions of effective computer utilization. The system is comprised of two major components, DYNAMAT and JIM, DYNAMAT edits input, verifies data base integrity, produces reports, simulates environments, and allows maintenance to the data base. JIM allows internal controlling/scheduling capabilities for job level processing. They were designed to be used together or with DYNAMAT alone, if internal control of job processing is not a requirement at a particular installation. Subsequent chapters of the document will discuss the properties of each component and their interrelationships.

Software Description: The programs are written in the COBOL and ASSEMBLY programming languages for implementation on an IBM 360 computer using the OS-MVT version 21 level 21.8 operating system. The system requires 512k bytes of core storage for implementation.

Related documentation: AD-A027 781/4.

Keywords: *Software, *Scheduling, *Computer programming, Data bases, Assembly languages, Magnetic tape, *Software tools, DYNAMAT computer program, JIM computer program.

Availability: NTIS, CP **T12**, mag tape. Source tape is in EBCDIC character set. Tape can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions. Price includes documentation.

AD-A030 209/1

FORTRAN Compiler Validation System, 1977. Version 1.0 Population File (TAPE).

Software. The FORTRAN Compiler Validation System (FCVS) is used to validate FORTRAN compilers and to insure their conformance to the language specifications as defined in American Standard FORTRAN X3.9-1966. This initial version of the FCVS is based on the intersection of X3.9-1966 and its successor American National Standard Programming Language FORTRAN X3.23-1977. The programs making up the FCVS are designed such that they can be exercised using FORTRAN compilers resident on mini-computers as well as larger computer systems. The system consists of a comprehensive set of audit routines, their related data, and an executive routine which prepares the audit routines for compilation in a particular hardware/operating system environment. Each audit routine is a FORTRAN program which includes several tests and supporting procedures indicating the results of the tests. The executive routine provides a method for resolving implementor unique features within the source FORTRAN programs. The executive routine also provides the user with a means for updating source programs.

Related documentation: AD-A030 210, AD-A030 211.

Keywords: *Software, *Compilers, Validation, *Fortran, Standards, Computer programs, Magnetic tape, Specifications, Fortran compiler validation system, Proving, *Software tools.

Availability: NTIS, CP **T04**, mag tape. Source tape is in BCD character set. Tape can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Specify recording mode desired. Call NTIS Computer Products if you have questions. Price includes documentation.

AD-A030 212/5

PDP-11 Macro Cross Assembler

Software. A cross assembler has been written in PL/1 to run off-line on the IBM 360/370 computer to assemble programs for the PDP-11/20 computer to be link-edited by the latter. The macro capabilities of vendor-supplied assemblers have been somewhat extended. The present version provides input for the DOS Linker-Loader, but output formatting is done by a separate program module, so that the work of matching to other link-editors is minimized.

Related documentation: AD-A025 751/9.

Keywords: *Software, Computer programming, Computer programs, Magnetic tape, *Software tools, *Assembler routines.

Availability: NTIS, CP **T04**, mag tape. Source tape is in EBCDIC character set. Tape can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, tract, density, and parity. Call NTIS Computer Products if you have questions. Price includes documentation.

AD-A035 449/8

Fortran Automatic Typesetting Systems (Fats)

Software. Fats is a system of subroutines, accessible from Fortran and other high-level languages, which generate the control tapes for GPO's Linotron electronic typesetting machine. The routines have been designed for mainly tabular composition, primarily scientific and mathematical tables. Complete and clear documentation is available.

Software description: The system is written in Fortran and Assembler programming languages for implementation on an IBM 360/40 computer using the OS version operating system. 100K 8-bit bytes of core storage are required to operate the model.

Related documentation: AD-A035 448/0.

Keywords: *Software, *Typography, Tabulation processes, Magnetic tape, *Fortran, Fats system, Tabular composition, Linotron, Composing.

Availability: NTIS, CP **T05**, 1 Reel. Source tape is in EBCDIC character set. Tape(s) can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, tract, density, and parity. Call NTIS Computer Products if you have questions. Price includes documentation.

AD-A041 963/0

Job Family Scheduler.

Software. The Job Family Scheduler (SJFM) is a utility program that permits the programmer to control the execution sequence for a series of logically related jobs, i.e., a job family. The job family is defined as a list of job names which is either a member of a partitioned data set or a sequential data set. **Software Description:** The program is written in the ALC programming language for implementation on an IBM 370/165 computer using the IBM/OS, version 21.8, MVT with HASP level operating system. 8K bytes of core storage are required to operate the program.

Keywords: *Software, Computer programs, Magnetic tape, *Utility routines, *Computer systems programs, *Software tools, *Scheduling.

Availability: NTIS, CP **T05,** mag tape. Availability: Source tape is in EBCDIC character set. Tape(s) can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, tract, density and parity. Call NTIS Computer Products if you have questions. Price includes documentation.

AD-A056 057/3

Generalized Report Generation and Analysis Package, Adaptable to Mini-Computers

Software. This software package allows a user to access data from a database, perform arithmetic calculations of the data, and output the data in a user-designed report. It allows the user much flexibility with a minimum amount of input. It requires less than 30 minutes to format and output a new report from the same database. The FORTRAN used to write this system is fairly simple, and does not rely on machine dependent functions.
Software Description: The program is written in the FORTRAN V programming language for implementation on a Interdata computer using the OS32MT operating system 167.25k bytes of core storage are required to operate the model. (Author)
Related documentation: AD-A056 055, AD-A056 056.

Keywords: *Software, Computer programming, Fortran, Computations, Data bases, MINIGAP system, Report generators, Magnetic tapes, Minicomputers.

Availability: NTIS, CP **T04,** mag tape. Source tape is in ASCII Character set. Character set restricts preparation to 9 track one-half inch tape only. Identify recording mode by specifying density only. Call NTIS Computer Products, if you have questions. Price includes documentation.

AD-A059 541/3

Advanced Information System Network.

For complete citation, see 12 Library and Information Sciences.

AD-A062 036/9

1978 FORTRAN Compiler Validation System, Version 1.0.

Software. The Federal COBOL Compiler Testing Service has recently released the initial version of a Compiler Validation System for the 1978 FORTRAN Standard (American National Standard Programming Languange FORTRAN, X3.9-1978). Version 1 of the 1978 FORTRAN Compiler Validation System (FCVS) was designed to test the subset language as defined in FORTRAN 78. The test routines making up the system are for the most part stand alone programs. They are available on a source program library tape. A special program written in FORTRAN is provided which will automatically load each of the programs making up the FCVS on the users system, thus facilitating their use by any Federal Agency, private user or vendor. The tests are progressively complex exercises of statement combinations representing typical language usage. They can be used to evaluate compiler useability and conformance to the 1978 FORTRAN Standard, and can aid in precise identification of compiler flaws. The test routine outputs are tailored to each of the tests involved in order to aid in the specific diagnosis of instances of nonconformance or of compiler errors. For each test, the output indicates whether the test passes; if a test fails, the correct results and the compiler produced results are displayed on the output report. The audit routines are so designed that the user can quickly and easily locate the source code which caused the failure for further analysis. The FCVS architecture supports thorough quality testing of the compiler; at the same time, with no loss of efficiency or increase in complexity, the system also provides for the auditability of the testing operation. The system was produced to be used in support of the procurement of FORTRAN 78 compilers, but it is also designed for the general user. The approach taken in producing the FCVS has potential for improving the development of future FORTRAN standards (e.g. FORTRAN 90) and the quality of compilers available to both government and non-government users.
Related documentation: AD-A062 037, AD-A062 038.

Keywords: *Software, *Compilers, Validation, *Fortran, Computer programs, Auditing, Computer program verification, *Software tools, Fortran Compiler Validation System, Proving.

Availability: NTIS, CP **T08,** mag tape. Source tape is in ASCII character set. Character set restricts preparation to 9 tract one-half inch tape only. Specify recording mode desired. Call NTIS Computer Products, if you have questions. Price includes documentation.

AD-A101 335/8

Graphics Compatibility System (GCS) - 2D

Software. This is a FORTRAN-based computer graphics system designed for interactive use on a wide variety of computer graphics terminals. Due to its comprehensive and modular design, GCS provides a simplified easy to learn and easy to use approach to computer graphics, while simultaneously providing a powerful tool which the sophisticated programmer may use for demanding and highly interactive graphical applications. GCS provides compatibility at two distinct levels: (a) Cross-compatibility from one computer system to another; and (b) Cross-compatibility between computer graphics ter-

minals. Cross-compatibility from one terminal to another has been achieved in a manner which is completely transparent to the user. One need no longer be concerned about the problems of 'tailoring' his programs for a given graphical device--GCS provides the maximum capabilities offered by the various terminals in order to satisfy the user's graphical requirements. Device independence provides the user with the option of preparing and debugging his graphics program on a terminal other than the type he may desire for final output--a consideration of paramount importance for installations which may have a limited number of graphical devices available at any given time.

Software Description: The system is written in Fortran for implementation on a variety of computer systems. Memory requirement is 60K bytes.

Related documentation: AD-A083 424, AD-A082 732, AD-A070 907, AD-A101 434, AD-A101 433.

Keywords: *Software, *Interactive graphics, *Computer graphics, Computer program documentation, Compatibility, Data processing terminals, Fortran, Computer programming, User needs, Handbooks, Formats, Structures, Two dimensional, Three dimensional, Costs, GSC(Graphics Compatibility System).

Availability: NTIS, CP **T99,** mag tape. Availability: Source tape is available in character sets Ebcdic, BCD, Fieldata, or special ASCII and can be prepared in most standard 7 or 9 track recording Modes. Specify character set, track, density, and parity. Call NTIS Computer Products if you have questions. Price includes documentation.

AD-A101 336/6

Graphics Compatibility System (GCS) - 3D

Software. This is a FORTRAN-based computer graphics system designed for interactive use on a wide variety of computer graphics terminals. Due to its comprehensive and modular design, GCS provides a simplified easy to learn and easy to use approach to computer graphics, while simultaneously providing a powerful tool which the sophisticated programmer may use for demanding and highly interactive graphical applications. GCS provides compatibility at two distinct levels: (a) Cross-compatibility from one computer system to another: and (b) Cross-compatibility between computer graphics terminals. Cross-compatibility from one terminal to another has been achieved in a manner which is completely transparent to the user. One need no longer be concerned about the problems of 'tailoring' his programs for a given graphical device--GCS provides the maximum capabilities offered by the various terminals in order to satisfy the user's graphical requirements. Device independence provides the user with the option of preparing and debugging his graphics program on a terminal other than the type he may desire for final output--a consideration of paramount importance for installations which may have a limited number of graphical devices at any given time.

Software Description: The system is written in Fortran for implementation on a variety of computer systems. Memory requirement is 60K bytes.

Related documentation: AD-A083 424, AD-A067 976, AD-A070 867, AD-A082 732, AD-A070 907.

Keywords: *Software, *Interactive graphics, *Computer graphics, Computer program documentation, compatibility, Data processing terminals, Fortran, High level languages, Costs, Three dimensional, Subroutines, Control systems, Specifications, User needs, GCS(Graphics Compatibility System), GSC computer program.

Availability: NTIS, CP **T99,** mag tape. Availability: Source tape is available in character sets Ebcdic, BCD, Fieldata, of special ASCII and can be prepared in most standard 7 or 9 track recording modes. Specify character set, track, density, and parity. Price includes documentation.

AD-A101 670/8

Ada/Ed (NYU)

Software. This implementation of Ada represents the language definition as interpreted by NYU and does not represent the official government definition until such time as it has passed all official government validation testing. Oranizations receiving copies of Ada/Ed should understand that the sole purpose of releasing this software is to foster the education and training of an Ada workforce. Installation instructions are included with each release.

Software Description: The program is written in the SETL programming language for implementation on a DEC VAX 11-780 computer operating under VMS 2.0. One megabyte of memory is required to operate the software.

Keywords: *Software, Computer program documentation, Computer programming, *High level languages, *Programming languages, Costs, Specifications, Computer files, Magnetic tape, Department of Defense, Compilers, *ADA Programming language, ADA/ED Computer program.

Availability: NTIS, CP **T04,** mag tape. Source tape is in ASCII character set. Character set restricts preparation to 9 track, one-half inch tape only. Identify recording mode by specifying density only. Call NTIS Computer Products, if you have any questions. Price includes documentation.

AD-A102 391/0

Honeywell H6000 Generalized Monitor Facility

Software. The Honeywell H6000 Generalized Monitor Facility Systems allows an in-depth analysis of many phases of GCOS operation. Currently, the GMF contains seven monitors and allows concurrent execution of any of the seven monitors. The monitors are: Memory Utilization Monitor, Mass Storage Monitor, Channel Monitor, Communications Monitor, Tape Monitor, CPU Monitor, and Batch & TSS Tuning Guides. This software is currently operating on H6000, release WWSR6.4, which is equivalent to HIS commercial release 2H. To work on a commerical release 2H, some slight modifications are required. The contents of the tape are described in the installation guide.

Software Description: The system is written in the FORTRAN and Honeywell Assembly languages for implementation on a Honeywell H-6000 series computer using the Worldwide Military Command and Control System operating system. The minimum core storage requirement is 64K bytes.

Related documentation: AD-A102 392, AD-A073 133, AD-A060 873, AD-A059 938, AD-A059 937.

Keywords: *Software, Computer program documentation, *Command and control systems, *Global communication systems, Computerized simulation, Time sharing, Systems engineering, H-

6000 computers, WWMCCS(Worldwide Military Command and Control Systems), H-6000 tuning guide.

Availability: NTIS, CP **T14**, mag tape. Availability: Source tape is in Honeywell BCD Character set. Character set restricts preparation to 9 track, one-half inch tape only. Identify recording mode by specifying density only. Call NTIS computer products, if you have questions. Price includes documentation.

AD-A102 565/9

Total Structure Verifier System (TSVS)

Software. The Total Structure Verifier System (TSVS) is a utility which checks TOTAL file internal system fields. TOTAL files have pointer fields matching records within and between files. It is the purpose of the TSVS to check mode with a minimum of user preparation. The TSVS is designed to run in batch mode with a minimum of user preparation. The TSVS will report errors it finds by printing each record in error with a description of the error. The TSVS can find only those errors which are in conflict with the TOTAL file linkage rules. Thus, for example, the TSVS can find an error when a free space record points to an active record, but it cannot find an error when a data field has an incorrect value. In general, the TSVS will find errors of structure, when the TOTAL nucleus routines, while processing through application programs, improperly access records. The TSVS validates the integrity of the individual files without using the data base management system itself. The User's Manual is contained in the fist file of the magnetic tape.
Software Description: The system is written in PL/1 and ALC for implementation on an IBM 370 computer under MVS.

Keywords: *Software, Computer files, Data bases, Data management, Computer program documentation, Magnetic tape, Error analysis, User needs, Instruction manuals, Fields(Computer programs), *File maintenance, *Data management systems, TSVS(Total Structure Verifier System), TSVS computer program, DBMS(Data Base Management Systems), PL/1 programming language, ALL programming language, EBCDIC character set.

Availability: NTIS, CP **T05**, mag tape. Source tape is in EBCDIC character set. Tapes can be prepared in most standard 7 or 9 track recording modes for 1/2 inch tape. Identify recording mode desired by specifying character set, track, density and parity. Call NTIS computer products if you have any questions.

AD-768 024/2

Generalized Information Retrieval Language (GIRL): Computer Program,

For complete citation, see 12 **Library and Information Sciences.**

AD-772 410/7

Machine Independent Data Management System (MIDMS) System Tape.

Software. This tape contains all the source, object programs and procedures of the Machine Independent Data Management System (MIDMS) along with the system's load modules, executable on an IBM 360/40G or larger machine, under a PCP, MVT or MFT-II operating system configuration. It requires a minimum of 128K bytes of core with PCP, and 256K bytes with MVT or MFT-II operating systems, and can use any input/output device supported by the operating system.
Related documentation: AD-783 409/6, AD-783 408/8, AD-783 407/0, AD-783 406/2, AD-766 825/4, AD-766 824/7, AD-766 823/9.

Keywords: *Software, Computer programming, *Data management, Magnetic tape, Information retrieval, Memory devices, MIDMS(Machine Independent Data Management System), Machine independent data management system, Data management systems.

Availability: NTIS, CP **T08**, 1 reel. Availability: Specify tape recording mode desired: 7 or 9 track. Price includes documentation.

AD-785 355/9

Synthetic Programs Library - Concepts and Facilities.

Software. A small library of synthetic COBOL programs has been developed, and experiments are being conducted to determine its suitability as a source of benchmark programs. The synthetic programs are task-oriented and completely portable. Parameters can be varied at compile time or execute time, and the design of each program is suitable to extensions, so that a wide range of eventualities can be accommodated. The behavior of these programs, running independently and in a mix, has been measured. Several problem areas have been uncovered and are discussed in the attached paper. Also discussed are potential uses and limitations of synthetic programs in the context of system benchmarks.
Related documentation: AD-785 357/5.

Keywords: *Software, Programming languages, Compilers, Magnetic tape, Conversion, Control sequences, Computer programs, *Cobol, Synthetic computer programs, Benchmark routines, *Computer programming, *Software tools.

Availability: NTIS, CP **T03**, 1 reel mag tape. Specify tape recording mode desired: 7 track, BCD; or 9 track, Ebcdic. Price includes documentation.

AD-785 590/1

Benchmark Portability System.

Software. The Benchmark Portability System (BPS) is designed to facilitate the process of benchmark conversion, evaluation and implementation. The BPS process, sometimes referred to as sanitation, takes user source COBOL programs from the native machine, and creates machine interchangeable user benchmark programs and data translation programs. Data translation programs, referred to as data translations routines, translate machine dependent data to machine interchangeable data and validate it as to data content. The programs (benchmark and data translation) are placed in a source COBOL program library on tape (population file). The benchmark package available to the vendor includes the population file along with an interface routine (VP-Routine) to facilitate the implementation of the COBOL programs on the target machine, the machine interchangeable data and benchmark documentation.
Related documentation: AD-785 356/7.

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Keywords: *Software, Programming languages, Compilers, Magnetic tape, Validation, Conversion, Control sequences, Computer programs, *Software tools, *Benchmark routines, Translator routines, Computer program verification, Benchmark portability system.

Availability: NTIS, CP **T03,** 1 reel mag tape. Availability: Specify tape recording mode desired: 7 track, BCD; or 9 track, Ebodic. Price includes documentation.

COM-73-10626/2

Fortran Programs for Text Editing, File Manipulating, and Automatic Typesetting.

Software. The file contains blocked card images, nine 80 character cards to a record, for a series of Fortran programs consonant with NBS Technical Notes numbers 444, 470, 500, and 700. These programs are used for data and file manipulation, for text editing and data retrieval, and for automatic typesetting of publications.

Software Description: The programs, developed by the staff of the Data Systems Design Group of the NBS Office of Standard Reference Data, are written in a proper subset of Fortran 4 so that they can be run with little or no modification on any computer having a Fortran 4 compiler. The programs have been used with IBM, CDC, and Univac 1108 computers.

Keywords: *Software, *Data storage, Computer programs, *Editing routines, Computer aided typesetting, Formated file systems, Fortran.

Availability: NTIS, CP **T05,** 1 reel mag tape. Specify tape recording mode desired: 7 or 9 track. Price includes documentation.

COM-74-10920/8

Rudiments of a FORTRAN Analyzer

Software. Rudiments of a FORTRAN static analyzer are now available to interested parties. Comprising fifteen modules of about 2200 line of (mostly) American National Standard FORTRAN, this FORTRAN analyzer presently performs the following: (1) transforms statements (including continuations) into a standard, blank-free machine-independent form. This intermediate representation of FORTRAN statements is manipulated very easily, and is independent of internal character representations of host machines. (2) Identifies each statement as to type, e.g. assigned GOTO, computer GOTO, etc. (3) Tallies statements against 118 categories by individual program and on an accumulative basis. The package was developed on an 1108/EXEC-8, but any system with disk storage should work. The tape is EBCDIC, odd parity, 9 track, 800 bpi, BLKSIZE=720(9 card images). The first file on the tape is null. The second contains 2728 blocked card images--the analyzer routines and some test data. Conversion to 6-bit Fielddata or ASCII is possible. A final product, an analyzer which also instruments FORTRAN decks to monitor executions, will be released later in calender year 1974.

Related documentation: COM-73-50926.

Keywords: *Software, Computer programs, Magnetic tapes, Fortran, *Software tools, Univac 1108 computers.

Availability: NTIS, CP **T03,** 1 reel mag tape*. Specify tape recording mode desired: 7 or 9 track. Price includes documentation.

COM-75-10044/6

An Analyzer to Automatically Instrument FORTRAN IV Decks with Frequency Counters.

Software. Among possible methods of gaining reliable information on FORTRAN usage, a program analyzer (actually a preprocessor) was chosen as being convenient and effective. The analyzer has two phases, the STATIC phase where it collects--from individual programs written in FORTRAN-IV language-feature statistics, and the DYNAMIC, where a test program is run with counters. Dynamic testing identifies heavily used portions of code, facilitating program optimization. In addition, untested segments of code are isolated, thereby promoting more thorough testing. The package presented here aims at simplicity, with some sacrifice in performance and analysis power. Instrumentation is a single pass operation. No new labels or variables are introduced into the test program code; only one function name and a few additional statements are added. The analyzer is written entirely in FORTRAN, with system-dependent areas isolated to a few short sections. The present version has been developed on a Univac-1108, but does not assume a 36 bit word.

Related documentation: COM-75-50048/8.

Keywords: *Software, Magnetic tape, Computer programming, Fortran, *Software tools.

Availability: NTIS, CP **T04,** 1 reel mag tape. Specify tape recording mode desired: 7 or 9 track. Price includes documentation.

COM-75-10182/4

NBS FORTRAN Test Programs. Revision 1.

Software. Volumes 1, 2, and 3 contain the documentation, Version 1 program listing, Version 3 program listing, respectively. The magnetic tape containing the NBS FORTRAN Test Programs is available in 7-track BCD, 9-track ASCII or EBCDIC recording. The NBS FORTRAN test programs, written in Standard FORTRAN, are designed to test whether a FORTRAN compiler accepts the forms and interpretations of the FORTRAN language as described in the American National Standard FORTRAN document X3.9-1966. The test programs, comprised of 116 test units, are structured into two versions, each containing approximately 14,500 punch card images. The test units may be used as separate executable FORTRAN programs, or may be linked end to end with other test units, with a minimum of user effort, to improve operating efficiency.

Related documentation: COM-75-50140/3, COM-75-50139/5, COM-75-50138/7.

Keywords: *Software, Computer systems programs, *Verifying, *Compilers, Acceptability, Test equipment, Magnetic tapes, *Fortran, *Software tools.

Availability: NTIS, CP **T08,** 1 reel mag tape. Specify tape recording mode desired: 7 track, BCD, FORTRAN H Set; or 9 track, EBCDIC or ASCII. Price includes documentation.

PB-182 846/6

System and Software Simulator.

Software. The System and Software Simulator (S3) is a digital event simulator written in Fortran 4 and designed to perform simulations of computer systems hardware and software and of the workload being applied to the system. The file contains the Fortran programs and subroutines as described in publications AD-679 269 thru AD-679 272. Portions of these programs were designed specifically to use some of the features of the Univac 1108 computer system and would require modification when used on other computer systems. Also included on this tape are several sets of data cards that are used to initialize some of the Fortran tables. The file consists of approximately 15,523 records.
Related documentation: AD-679 272/5, AD-679 271/7, AD-679 270/9, AD-679 269/1.

Keywords: *Software, *Data processing systems, Computer programs, *Computerized simulation, System and software simulator S3.

Availability: NTIS, CP **T04,** 1 reel mag tape. Specify tape recording mode desired: 7 track, or 9 track, Price includes documentation.

PB-214 156/2

SURGE 72 Cobol Generator

Software. The program is a non-proprietary computer program in COBOL which generates appropriate data-processing logic and produces COBOL source programs from simple descriptive parameter cards. As a machine-independent and application-independent software package, it provides programmer and non-programmer personnel with a short-cut approach to file sorting, selective retrieval, and tabular report generation, including multiple levels of totals and a capability for certain other kinds of computation.
Software Description: The program was written in the COBOL programming language for implementation on an IBM 7094 or CDC 6400 computer.
Related documentation: PB-269 703.

Keywords: *Software, Computer programs, *COBOL, Report generators, Mathematic logic, Data processing, Information retrieval, Magnetic tapes, *Software tools, SURGE 72 computer program, SURGE computer program.

Availability: NTIS, CP **T04,** 1 reel. Specify tape recording mode desired: 7 track, BCD, or 9 track, EBCDIC. Price includes documentation

PB-226 701/1

DCRT Data Management System. RMAG Computer Programs

Software. The RMAG program generator package consisting of UPDATEGEN, REFORMATGEN, and TRANSACTGEN provides the user with source language generation of programs for such functions as file creation, update and edit, and retrieval. The generative approach provides complete flexibility based on a data naming convention to control the data with a minimum of programming support. The generated code may be saved and reused for repetitive requirements, discarded after use for non-repetitive needs, or modified for a more personalized application. All of this is possible with the speed and low cost of generation and the fact that the generated code is fully documented COBOL. In summary: The generators provide the full flexibility of source language code. The package, since it is compiler oriented, provides the user with only those functions that he needs. Once a generator has provided its output, the user is independent of it. His compiler level source program can be used on other equipment if necessary.
Software Description: The package is written in COBOL for implementation on IBM 360/370 series computers.
Related documentation: PB-226 700/3.

Keywords: *Software, Programming languages, Magnetic tape, Report generators, Cobol, Macroprogramming, RMAG programming language, Data management systems, DCRT data management system, *Data management.

Availability: NTIS, CP **T06,** 1 reel mag tape*. Specify tape recording mode desired: 7 or 9 track. Price includes Users Guide.

PB-226 796/1

DOS/HASP Support System for Remote Terminals or for Batch Processing

Software. The IBM HASP System operates as a compatible extension to the MFT or MVT options of the Operating System for System/360 and System/370 to provide additional support in the areas of job management, data management, and task management. HASP provides support for RJE on a wide variety of terminals including remote CPU's. This program is a modified version of the normal stand-alone HASP/RMT 360 program so that it provides RJE support under the System/360 Disk Operating System. It allows the user of a limited size computer to operate a HASP work station concurrent with batch processing, and to allocate any or all of the unit record devices to the task (remote or batch) which has the greatest need for them.
Related documentation: PB-231 458/1.

Keywords: *Software, Computer programs, Punched cards, Data processing terminals, *Operating systems(Computers), *Batch processing, *HASP, JDINS, *Data processing.

Availability: NTIS, CP **T03,** 1 reel mag tape. Price includes documentation.

PB-232 114/9

General Tabulation System (GT)-Computer Program.

For complete citation, see 13 **Mathematics and Statistics.**

PB-232 272/5

FAST: File Analysis and Selection Technique.

Software. The FAST program allows the user to easily retrieve selected portions of information from a data file, and to print the information in some usable format or make it available for further proc-

essing. Data files are accessed, using FAST, by the coding of a simple set of parameter cards. Options include the ability to sort output before printing, to select fields within a record before output, to insert specific characters into the output record, to print heading information at the top of a page of output and several print spacing options.
Software Description: The program is written in ALC for implementation on IBM 370 series computer under OS MVT.
Related documentation: PB-232 273/3.

Keywords: *Software, Computer programs, *Information retrieval, Magnetic tapes, Data processing, *Software tools, FAST computer program, *Data management.

Availability: NTIS, CP **T04**, 1 reel mag tape. Specify tape recording mode desired: 7 track, BCD; or 9 track, Ebcdic. Price includes User's Guide.

PB-234 935/5

SCERT Model Building System.

Software. The SCERT Model Building system is designed to automatically create input definition cards for the SCERT computer simulator. Although the system was designed primarily for use at Chemical Abstracts Service, some generalized capabilities have been added to make it more installation independent. The documentation identifies program coding that may require modification to conform to the user's particular standards.
Software Description: The programs are written in ALC for implementation on an IBM 370/165 under OS MVT. Maximum core storage requirement is 120K.
Related documentation: PB-234 934/8.

Keywords: *Software, *Computerized simulation, *Data processing, SCERT system, Magnetic tape, Mathematical models, Computer programming, Programming manuals, IBM 370/165 computers.

Availability: NTIS, CP **T05**, 1 reel mag tape*. Available only in 9 track, Ebcdic. Price includes User's Guide.

PB-236 811/6

RMAG21. Version 21 mod 6.

Software. RMAG21 (Recursive Macro Actuated Generator, Version 21) is used for the generation of source language code, data, text, and arbitary strings. A powerful stand-alone macroprocessor, RMAG21 is used to generate source coding for virtually any computer language. Its applications range from that of a synthesizing editor used to produce difficult-to-write fragments of source language code to that of a complete-system generator which produces JCL, documentation, and coordinated subroutines in different languages. Interactive routines are programmed in RMAG21 for use under TSO. RMAG21 has been in use at NIH's computer facility for nearly a year, and previous versions have been used there since 1970. It has been exported to other computer installations, e.g., the Library of Congress and Princeton University.
Software Description: The program was written in the ALC programming language for implementation on IBM 360/370 computer. It requires about 66,000 bytes of core storage, however the core requirement will vary depending on the complexity of the program being written. It can be implemented using the VS or the OS operating systems.
Related documentation: PB-236 812/4.

Keywords: *Software, *Computer programming, Magnetic tape, Assembly languages, Recursive routines, *Software tools, RMAG21 computer program, RMAG programming language.

Availability: NTIS, CP **T03**, 1 reel mag tape. Available in 9 track, Ebcdic. Price includes User's Guide.

PB-238 820/5

APS-73 Cross Assembler.

Software. The APS-73 Cross Assembler assembles APS-73 symbolic code on the 370. It outputs an assembly listing and a source module on magnetic tape for input to the APS-73 assembler on the APS-4. (NOTE: The APS-73 is Autologic's mini-computer designed to replace the DATAMATE-70. They are compatible in functions and programming language.) Also included is the SHELLSRT module and the INIT macro. INIT is executed to save coding and keypunching in initializing a program module according to standards. SHELLSRT is an internal sort module using the merge/exchange method.
Software Description: Program is written in Assembly language for implementation on an IBM 370 computer.
Related documentation: PB-238 822/1, PB-238 821/3.

Keywords: *Software, *Computer systems programs, Data processing, Computers, *Assembler routines, Photocomposition, Information systems, APS-73 cross assembler, Minicomputers.

Availability: NTIS, CP **T04**, 1 reel mag tape. Specify tape recording mode desired: 9 track, Ebcdic; or 7 track, BCD. Price includes documentation.

PB-243 453/8

Reading USAC Project Data Management Technique Computer Program Module, Release No. 1.

For complete citation, see 14 **Municipal Information Systems.**

PB-244 905/6

Graphic Data Presentation and Edit Program (GADPET) for Interactively Displaying and Editing Map Data on the IBM 2250 CRT Terminal.

For complete citation, see 3 **Cartography.**

PB-246 203/4

Project RMAG. Logic Subroutines.

Software. An interrelated set of subroutines constituting a 'canned logic' package is announced. With these routines a schema containing single-letter atoms, any combination of five connectives, nested parentheses, (Church's) dots, and arbitrary spacing between elements is transformed to a minimized disjunctive normal form. Additionally the caller is told

whether the input schema is inconsistent, tautologous, or illformed. The user can determine the truth of schemata with respect (say) to the record currently in memory--thus deciding whether to retrieve this record according to potentially complex criteria. Or the user can generate reentrant code corresponding to schemata. These subroutines, written using a modern structured programming compiler, are available to the higher-order language IBM 370 programmer enabling him to instantly enhance his system by adding sophisticated logical specification to it.

Software Description: The program is written in the FORTRAN, Assembly and RMAGASM programming languages for implementation on an IBM 370 computer. The computer memory requirement is 20K.

Related documentation: PB-246 204/2.

Keywords: *Software, *Mathematical logic, Magnetic tapes, Compilers, Subroutines, Structured programming, *RMAG programming language, Software tools.

Availability: NTIS, CP **T03,** 1 reel mag tape. Available only in 9 track, EBCDIC. Specify tape recording mode required. Price includes documentation.

PB-246 643/1

Project RMAG. Arithmetic Subroutine.

Software. The availability of a comprehensive, powerful, new subroutine used to dynamically evaluate arithmetic expressions is announced. This subroutine, written using a modern structured programming compiler, is available to the higher order language IBM 370 programmer enabling him to instantly enhance his system by adding sophisticated arithmetic specification to his user communications. It is capable of analyzing and evaluating expressions containing some 49 powerful operators using 19 hierarchy levels, parentheses nested to any level, and including conditional subexpressions and deeply embedded replacement operators. The operator set permits integer arithmetic, logical, relational, truth functional, and machine-language bit-manipulating operations. The magnetic tape contains: (a) documentation suitable for listing using a TN train; (b) the macro library used to compile the routines; (c) source code; (d) generated ASM code; (e) the object module; (f) an RMAG generator which produces the source code for the scan logic for any table of operators; and, (g) a table of operators for (f). RMAG21 (PB 236811) is required for using (f) and (g).

Software Description: The model is written in the RMAGASM programming language for implementation on an IBM 370 computer. The computer memory requirement is 20K.

Keywords: *Software, Subroutines, Magnetic tapes, Arithmetic, Compilers, Computation, *Mathematical logic, Structured programming, Software tools.

Availability: NTIS, CP **T03,** 1 reel mag tape. Available only in 9 track, EBCDIC, odd parity. Specify tape recording mode desired. Price includes documentation.

PB-250 754/9

A Computer Model to Determine Low Cost Techniques to Comply with the Privacy Act of 1974.

Models-simulation. This ANSI Standard FORTRAN source program implements a computer model to determine low cost techniques to comply with the Privacy Act of 1974. An associated document, NBSIR 76-985 entitled 'A Computer Model to Determine Low Cost Techniques to Comply with the Privacy Act of 1974' is also available through NTIS. The associated document contains a complete description of the steps necessary to run the Cost of Privacy Model along with a description of the computer program which implements the Model. This document describes the general system requirements for running the program, how to input information to the Model and how to interpret the output. The Model accepts inputs about personal data systems, uses algorithms to provide incremental resources required to comply with the Privacy Act of 1974, and applies cost factors to the resources to provide a cost estimate. Cost estimates of alternative compliance techniques can be generated. These can later be compared by the user to determine a cost effective method of compliance.

Software Description: This program is written in ANSI Standard FORTRAN programming language for implementation on a DEC PDP-10 computer using the DEC System 10 Monitor, Version 5, Level 07B operating system.

Related documentation: PB-250 755.

Keywords: *Models-simulation, *Data processing security, Operating systems(Computers), Fortran, Computer programming, Costs, Computerized simulation, Magnetic tape, *Privacy, Computer privacy.

Availability: NTIS, CP **T03,** 1 reel mag tape. Source tape is in HPASCII character set. Character set restricts preparation to 9 track one-half inch tape only. Identify recording mode by specifying density only. Call NTIS Computer Products, if you have questions. Price includes documentation.

PB-256 465/6

A FORTRAN Routine Reorganizer.

Software. A computer programmer is often required to make modifications to a FORTRAN routine that either he has not worked with for several months or he has never seen before. At the Bureau of Mines this is particularly true because much of its computer programming is done by contractors. This report describes a computer program designed to aid the program in such a situation by reorganizing FORTRAN routines. The reorganization includes: a sequential renumbering of the routine's statement numbers; a sequential renumbering and relocation of format statements; an alphanumeric reordering of dimensioned and typed variables; a uniform pattern of text spacing; and a sequential numbering of the records in the final FORTRAN routine. The computer program has been extensively tested by the author and has proven to be a valuable tool for reorganizing FORTRAN routines developed under contract and later utilized by the Bureau and for preparing routines for publication.

Field 7—COMPUTER SCIENCES

Software Description: The program is written in the FORTRAN IV programming language for implementation on a CDC 6600 computer using the SCOPE operating system.
Related documentation: PB-250 637.

Keywords: *Software, *Computer programming, Programming manuals, Magnetic tape, *Fortran, *Software tools.

Availability: NTIS, CP **T04,** mag tape. Source tape is in EBCDIC character set. Tape(s) can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired. Call NTIS Computer Products if you have questions. Price includes documentation,

PB-268 213/6

RMAG22. Version 22 mod 2.

Software. RMAG (Recursive Macro Actuated Generator) is used for the generation of source language coding, data, text, and arbitrary strings. The current release, RMAG22, is available in both stand-alone and subroutine callable varieties. RMAG is used to generate source coding for any language whose statements can be formed from the EBCDIC character set. The subroutine callable RMAG is available to higher-order and assembly language programmers enabling them to add this powerful macrogenerator to their own systems by means of simple subroutine calls. The uses of RMAG range from that of a synthesizing editor, used to produce difficult-to-write fragments of source language code, to that of a complete-system generator (including coordinated subroutines in different languages, JCL, and documentation). The tape contains: (a) documentation suitable for listing using a TN train, (b) 12 object modules, and (c) RMAGLIB, a library of useful RMAG22 routines.
Software Description: The program is written in the Assembly programming language for implementation on an IBM 370/168 computer using the OS/VS2, version 03.7A, operating system. 66K bytes of core storage are required to operate the model. However, the core requirements increase with complexity of program.
Related documentation: PB-268 214.

Keywords: *Software, *Compilers, Coding, Editing routines, Magnetic tape, *RMAG 22 computer program, *Macrogenerators, Software tools.

Availability: NTIS, CP **T04,** mag tape. Source tape is in EBCDIC character set. Character set restricts preparation to 9 track one-half inch tape only. Identify recording mode by specifying density only. Call NTIS Computer Products, if you have questions. Price includes documentation.

PB-269 217/6

ASCII Tape Dump Utility.

Software. The program dumps an ASCII formatted tape. Tape may be positioned, specific items may be located, and the printline may be aligned. Program may be executed in batch mode or in interactive (operator) mode.
Software Description: The program is written in Easycoder for implementation on a Honeywell 2015 under OS 2000. Approximately 24K of core storage in required.
Related documentation: PB-269 218.

Keywords: *Software, Computer programs, Tape dumps, *Magnetic tapes, *Utility routines, Combination processing mode, Tape drives = one, *Utility routines.

Availability: NTIS, CP **T03,** mag tape. Source tape is in BCD character set. Tape(s) can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions, Price includes documentation.

PB-269 416/4

ASCII/BCD Tape Copy Utility.

Software. The program copies ASCII to ASCII, ASCII to BCD, or BCD to ASCII.
Software Description: The program is written in Easycoder for implementation on a Honeywell 2015 under OS 2000. Approximately 16K of core storage is required.
Related documentation: PB-269 417.

Keywords: *Software, Computer programs, *Utility routines, *Magnetic tapes, H=Honeywell-2015, L=Easycoder, Tape drives = two, Tape copy utility.

Availability: NTIS, CP **T03,** mag tape. Source tape is in BCD character set. Tape(s) can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions. Price includes documentation.

PB-269 543/5

Multipurpose Tape Copy Utility.

Software. This program can transcribe multicard records onto tape. As tape-to-tape utility it will accept single or multireel, odd or even parity, 7 or 9 track, bannered or unbannered, labeled or unlabeled, blocked or unblocked tapes. It can select input items which satisfies user's criteria, can modify fields, generate constants, and rearrange fields.
Software Description: The program is written in Easycoder for implementation on a Honeywell 2015 under OS 2000. Approximately 44K of core storage is required.
Related documentation: PB-269 544.

Keywords: *Software, Computer programs, *Magnetic tapes, *Utility routines, Tape drives = one.

Availability: NTIS, CP **T03,** mag tape. Source tape is in BCD character set. Tape(s) can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions. Price includes documentation.

PB-270 975/6

General Purpose Label System.

Software. The system maintains a master file containing addresses. Distribution of publication is maintained for each addressee record. Distribution information may be selected and printed as a printed report or on gummed labels for mailing.
Software Description: The system is written in the COBOL programming language for implementation

on UNIVAC 1108 computer using the EXEC 8 operating system. The computer memory requirement is 15K.
Related documentation: PB-270 976.

Keywords: *Software, Labeling system, Computer programs, Gummed labels, Publications, Mailing, *Mail, *Labels.

Availability: NTIS, CP **T08**, mag tape. Source tape is in the EBCDIC character set. Tapes can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired. Call NTIS Computer Products if you have questions. Price includes documentation.

PB-272 536/4

Record Compression Routines.

Software. These routines provide a means for compressing and decompressing logical records by replacing any three or more identical characters with two special characters called from a Cobol program.
Software Description: The program is written in COMPASS for implementation on a CDC L3000 computer under MSOS. Core storage required in 2,758 words.

Keywords: *Software, *Data management, File management, *Software tools.

Availability: NTIS, CP **T05**, mag tape. Source tape is in BCD character set. Tape(s) can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions. Price includes documentation.

PB-275 185/7

Plotter System Subroutines for the UNIVAC 1108.

Software. This is a group of Univac 1108 subroutines written to aid in the use of an Electronic Associates, Inc. plotter (EAI 3500 Dataplotter) for offline plotting. Lines, points, alphanumeric characters of any size, slant or angle, grid lines, and gridded symbols (X, , or -) may be plotted. Separate callable Fortran subroutines generate the data points needed for the plotting on a 28 inch by 28 inch flat surface. Documentation also provides operating instructions for the plotter.
Software Description: The subroutines are written in Fortran 5 for implementation on a UNIVAC 1108 computer under EXEC 8. 30K bytes of core storage are required.
Related documentation: PB-275 186/5.

Keywords: *Software, *Subroutines, *Plotting, Curve fitting, Computer programming, Tape drives = one.

Availability: NTIS, CP **T08**, mag tape. Source tape is in FIELDATA character set. Character set restricts preparation to 9 track one-half inch tape only. Identify recording mode by specifying density only. Price includes documentation.

PB-275 187/3

String and Character Manipulation Routines for Univac 1108 Fortran Users.

Software. The software described therein is to aid in the storing or transfer of data as a constant, array, or list to an array or list as well as to extend to Fortran users the capabilities of string manipulation of constants and strings. The string functions were adopted from Xbasic developed by Language and Systems Development. The character manipulation capabilities were modified from the Business and Engineering Enriched Fortran (Beef) programs developed by Westinghouse Corp.
Software Description: The routines were written in the FORTRAN V and Assembly programming languages for implementation on a UNIVAC 1100 computer using the EXEC level 31 operating system.
Related documentation: PB-240 932/4.

Keywords: *Software, *String processing, Character manipulation, Data storage, *Software tools.

Availability: NTIS, CP **T05**, mag tape. Source tape is in FIELDATA character set. Character set restricts preparation to 9 track one-half inch tape only. Identify recording mode by specifying density only. Price includes documentation.

PB-276 212/8

Cfhdump - COBOL File Handler Dump.

Software. CFHdump is a processor which will dump Cobol CFH files that are on Fastrand-Formatted mass storage. Currently, it will only dump sequential files.
Software Description: The program is written in the Assembly programming language for implementation on a UNIVAC 1108 computer using the 1100 OS operating system. The computer memory requirement is 1150 bytes.

Keywords: *Software, File dumps, *Cobol, *Software tools.

Availability: NTIS, CP **T08**, mag tape. Source tape is in ASCII character set. Character set restricts preparation to 9 track one-half inch tape only. Identify recording mode by specifying density only. Call NTIS Computer Products if you have questions. Price includes documentation.

PB-277 362/0

Computer Output Microfilm Generator.

Software. This processor will allow the Univac 1108 user to generate magnetic tape which is input compatible with the Stromberg Carlton 4020 Microfilm Generator. It is designed to process Univac 1108/Exec 8 breakpointed files. Options and specifications allow the user to print and/or microfilm entire files or selected portions of a file; stack multiple microfilm files on the same tape; specify a number of end of file marks to skip over on input; and delete special characters.
Software Description: The program is written in Fortran 5 and Assembly languages for implementation on a UNIVAC 1108 computer under EXEC 8.

Keywords: *Software, *Computer output microfilm, Microfilm generators.

Availability: NTIS, CP **T03**, mag tape. Price includes documentation.

PB-277 392/7

Generalized Data Utility with Select, Reformat, and Report Capabilities.

Software. The Generalized Data Utility program, with select, reformat, and report capabilities, is a generalized data set utility designed to build and/or reformat user data sets. The program is constructed with one data input and three data outputs (the second and third outputs are optional). When properly defined, any fixed or variable length input (sequential, ISAM or AMIGOS) may be copied to one, two, or three output data sets. This program automatically truncates or pads the input records to match the output record size, therefore both the LRECL and BLKSIZE parameters may be varied from input to output.
Software Description: The program is written in the ALC programming language for implementation on an IBM 360/370 computer using the OS MVT operating system. 20-100K bytes of core storage are required to operate the model.
Related documentation: PB-277 393/5.

Keywords: *Software, *Utility routines, Magnetic tapes, *Software tools.

Availability: NTIS, CP **T05**, mag tape. Price includes documentation. Specify tape recording mode desired.

PB-277 411/5

Data Dictionary/Directory.

For complete citation, see 12 **Library and Information Sciences.**

PB-277 413/1

TAB40 Decision Table Preprocessor.

Software. The TAB40 Decision Table Preprocessor System converts limited, extended and mixed entry decision tables written in either a vertical or a horizontal format into Fortran, Cobol or Algol. It can handle tables of up to 99 rules and 99 clauses (i.e., conditions and actions). Free form statements can be intermixed with the decision tables. Includes a macro-definition facility which allows one to employ an enriched language in the decision tables.
Software Description: The system is written in the Fortran programming language for implementation on a UNIVAC 1106, UNIVAC 1108, CDC 6000, IBM 7040, IBM 7044, IBM 7090, or IBM 7094 computer, using an EXEC 8, V27.20.225/A/8 or Scope operating system. 58K bytes of core storage are required to operate the model.
Related documentation: PB-277 414/9.

Keywords: *Software, Cobol, Algol, Magnetic tapes, *Decision tables, TAB40 system.

Availability: NTIS, CP **T08**, mag tape. Specify recording mode desired. Price includes documentation.

PB-278 004/7

Fast Fortran and Direct Access I/O Package.

Software. FFIO is a package of I/O routines for sequential access to tape or disk using IBM's QSAM. It allows the user from inside a program to Read, Read backwards (tapes only), Write, Rewind, Unload (tapes only), Position to different files (tape only), Change tapes, and Access different members of a partitioned dataset. FFIO allows rapid access to both tape and disk. It allows I/O to multifile tapes, members of partitioned datasets and multiple tapes from within a user program with a minimal number of DD cards required. DAIO is a package of I/O routines for random access using channel programs. It allows blocking of the records. FF Encode and Decode routines allow rapid conversion between EBCDIC characters and internal IBM representation. Software accessible from FORTRAN, PL/1, ASSEMBLER, COBOL.
Software Description: The program is written in the Fortran and Assembler programming languages for implementation on an IBM 360/195 and 360/65 computer using the OS/MVT operating system. 4K bytes of core storage are required to operate the model.
Related documentation: PB-278 005/4.

Keywords: *Software, *Input output routines, Magnetic tapes, *Software tools, *Fortran.

Availability: NTIS, CP **T02**, mag tape. Price includes documentation. Specify tape recording mode desired.

PB-279 946/8

Standard Utility for Debugging and Auditing.

Software. Standard Utility for Debugging and Auditing is a general retrieval program which can be used to perform many of the program debugging and auditing functions associated with programming and auditing in a modern data processing system's environment. SUDA will accept a maximum blocksize of 32760-bytes. The blocksize must be established at the time the SUDA is assembled.
Software Description: The program is written in ALC for implementation on an IBM 360 under OS. 20K bytes of core storage are required to operate the model.
Related documentation: PB-279 947/6.

Keywords: *Software, *Utility routines, Magnetic tapes, *Software tools, *Software tools, Debugging(Computers).

Availability: NTIS, CP **T05**, mag tape. Price includes documentation. Specify desired tape recording mode.

PB-280 067/0

Disc Inventory System.

Software. This is a system used to inventory all online direct access volume and through it provide users and Center management with vital information on direct access data sets, volumes and space utilization. The system is slightly dependent on Agriculture's project number environment for billing and authorization, but is easily modifiable.
Software Description: The program is written in the Cobol and ASSEMBLER programming languages for implementation on an IBM 370/168 using the OS, SVS, MVS operating systems with 256k bytes of core storage being used to operate the model.
Related documentation: PB-280 068/8.

Keywords: *Software, On-line systems, *Data management.

Availability: NTIS, CP **T12**, mag tape. Specify recording mode desired. Price includes documentation.

PB-280 073/8

Direct Access Data Migration System.

Software. This system is used to move data sets from direct access to tape. Migrated data sets are stacked onto tapes, approximately 250 to 300 each tape. A retrieval function is included through which users can retrieve migrated data sets back to direct access. The migration system is dependent on the Archive Master File from the Disk Inventory System. **Software Description:** The program is written in COBOL programming language for implementation on an IBM 360/370 computer using the OS, SVS, MVS operating systems with 200k bytes of core storage being used to operate the model.
Related documentation: PB-280 074/6.

Keywords: *Software, Magnetic tapes, *Data management.

Availability: NTIS, CP **T08**, mag tape. Includes documentation.

PB-281 372/3

Symbolic Logic Retrieval (SLR).

Software. The SLR generator, reading free-form specifications of the user's file structure, creates a customized IBM 370 COBOL program which interactively retrieves selected records from the user's file. The generated program permits its user to use sentential calculus schemata, existential and universal quantifiers, sophisticated arithmetic specification, the RMAG macrogenerator, and external macro libraries. The bulk of the work done by the generated program is accomplished by means of calls to standard subroutines, including the RMAG macrogenerator, logic subroutines, and arithmetic subroutine. Because the SLR generator produces a source COBOL program, additional features are easily added by COBOL programmers. One manual tells how to generate and use SLR programs. The other manual contains the source code from the various SLR modules giving the interested programmer the knowledge needed both to modify SLR and to write his own programs which interface with those standard subroutines. Instructions on how to install SLR at your IBM 370 TSO installation are contained in the documentation. **Software Description:** This model is written in the Fortran, Cobol, Assembly and RMAGASM programming languages for implementation on an IBM 370 computer using the OS/VS2 TSO operating system. Minimum bytes of core storage required: 300k. Core requirements increase with complexity of data file, retrieval specifications, and RMAG use.
Related documentation: PB-286 623/4, PB-286 624/2.

Keywords: *Software, *Information retrieval, Computer programs, Magnetic tapes, *Software tools, Symbolic logic retrieval generators, Macrogenerators, RMAG project.

Availability: NTIS, CP **T05**, mag tape. Source tape is in EBCDIC character set. Tapes can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions. Price includes documentation.

PB-281 852/4

BEST1: BESTOP to PL/1 Language Converter.

Software. The BEST1 computer system converts any application program written in the BESTOP computer language into a functionally equivalent PL/1 program. Additionally, users can specify descriptive names for any or all data fields within the resultant PL/1 program. Thus the BEST1 system supplies an automated means of converting BESTOP application programs into PL/1 programs (with the rationale that the PL/1 language has much stronger overall capabilities and a wider degree of availability and support). Note that the BESTOP language itself is currently used at several agencies, both governmental and private. BESTOP users generally regard BESTOP as an easily used, efficient and concise means of coding a wide range of applications involving file maintenance, data retrieval, table lookup, etc.

Software Description: The program is written in PL/1 programming language for implementation on an IBM 370/168; 400K bytes of core storage are required to operate the model.

Keywords: *Software, Magnetic tapes, *PL/1 programming language, *Programming languages, *Software tools, BEST1 system, *BESTOP programming language.

Availability: NTIS, CP **T03**, mag tape*. Source tape is in EBCDIC character set. Tapes can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired. Call NTIS Computer Products if you have questions. Price includes documentation.

PB-284 425/6

TAB70 Decision Table Processor.

Software. The TAB70 Decision Table Processor converts limited, extended and mixed entry decision tables written in either a vertical or horizontal format into COBOL. It can handle tables of up to 99 rules and 99 clauses (i.e., conditions and actions). Free form statements can be intermingled with the decision tables.

Software Description: The program is written in the Fortran programming language for implementation on an IBM 360, CDC 6000, or UNIVAC 494 computer using the OS-DOS or Scope operating system. 50K bytes of core storage are required to operate the model.

Related documentation: PB-284 426/4, PB-284 427/2.

Keywords: *Software, *Decision tables, Magnetic tapes, TAB70 computer program, Proprocessors, Cobol.

Availability: NTIS, CP **T08**, mag tape. Source tape is in EBCDIC character set. Tapes can be prepared in most standard 7 or 9 track recording modes for one half-inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions. Price includes documentation.

PB-285 756/3

Table Producing Language (TPL), Version 4.0.

For complete citation, see 13 **Mathematics and Statistics.**

PB-289 158/8

Master, Random, Hex and Search Program for Dumping Sequential Files.

Software. This program is a general purpose dump program designed to dump a Sequential File. The capabilities of the program are as follows: (1) Sequential records can be dumped in Alphanumeric and/or Hex at user selected locations throughout the Dataset. (2) A random number of records can be selected and dumped in Alphanumeric and/or Hex from the users Dataset. (3) Absence or presence of specified literals can be searched for within a record. The selected records will be dumped in accordance with criteria specified in 1 and 2 listed above. The program requires that input parameters be passed to it to ensure proper execution. The minimum requirements are a beginning 'record and ending' record to be dumped. Where applicable, dynamic core allocations can be made via user supplied input parameters. Defaults are established within the program in the absence of such parameters.
Software Description: The program is written in PL1 and consists of a main routine and three subroutines. It is compiled using PL1 optimizing compiler and runs on an IBM 370/158 OS/VS2 release 3.70 System.

Keywords: *Software, Records, Data processing, Information retrieval, Records management, Computer programs, PL/1 programming language, Magnetic tapes, *Software tools, *Computer programming, Computer files, Alphanumeric characters, Hexadecimal coding, Dumping.

Availability: NTIS, CP **T03,** mag tape. Source tape is in EBCDIC character set. Tapes can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions. Price includes documentation.

PB-290 474/6

NMGS2, a Multiple Regression Program.

Software. NMGS2 is a linear regression program. Core required is 128K for a 500 x 31 order matrix. Dimension statements are variable. The user may look at comment statements in program to determine how to compute core for larger problems. The program carries two vectors and a single subscripted upper triangular matrix in main core at one time. A Logical*1 string of bytes is used to pick off the exponents as they are computed to shut off overflow and underflow. Problems scaled 70 digits to the left of the decimal and problems scaled 69 zeros before a significant digit have been run on NMGS2 with substantially the same solution as for the original problem except for the position of the decimal. Since the length of vector (square root of the sum of the squares of the vector) is not needed until the final solution, columns are reduced to unit length so that each vector is directly comparable with every other vector, which not only increases the numerical stability of the algorithm but also increases the number of side statistics that can be obtained in the process of solution. Output is extensive, but user is provided with many options to reduce output as desired. An option for weighted least squares is available. However, if zero or negative weights are used, standardized residuals become the unweighted standardized residuals in the interest of economy of programming. An option for singular value decomposition is also available. As the process is iterative, convergence may be slow if the singular values are approximately equal. The program will stop after 50 iterations. If user is determined to see the final result of such problems, the number of iterations can be increased. Most problems will converge after three to fifteen iterations. Singular values can be obtained for the data matrix A, the normalized columns of A, the normalized columns of A with the means out, the columns of A with the means out, or the singular values of the factored correlation matrix.

Software Description: The program is written in the FORTRAN IV programming language for implementation on an IBM 360/370 computer. The computer memory requirement is 128K.

Related documentation: PB-290 475.

Keywords: *Software, *Linear regression, Matrices(Mathematics), Matrix methods, Accuracy, Numerical analysis, Least squares method, Stability criteria, Magnetic tapes, *Regression analysis, *Statistical analysis, *Data storage, NMGS2 computer program.

Availability: NTIS, CP **T04,** mag tape. Source tape is in EBCDIC character set. Tapes can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired. Call NTIS Computer Products if you have questions. Price includes documentation.

PB-293 667/2

Simpson's Rule Integration.

Software. This program does numerical integration using Simpson's rule. The output includes area, moment, center of gravity about the Y-axis and the center of gravity over the length along the X-axis. The integration algorithm is found as a subroutine between lines 400 and 610 of the program and can be extracted for use as a subroutine in other programs.

Software Description: The program is written in Basic for implementation on a UNIVAC 1100/42 under EXEC 8. Approximately 20K words of core storage are required.

Keywords: *Software, *Differential equations, *Numerical integration, Computer programs, Simpson rule, Disc-drum units = one, Computers terminals = one.

Availability: NTIS, CP **T03,** mag tape. All prices cited are for the North American Continent ONLY, all others write for quote. Source tape is in EBCDIC character set. Tape(s) can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Price includes documentation.

PB-294 144/1

Project RMAG: SLANG (Structured Language) Compiler.

Software. Implemented in itself, the SLANG compiler is a structured programming tool for IBM 370 assembly language programmers. It has many powerful features--some brand new. The generated assembly language code contains the line numbers from the SLANG input--thus making it easy to correct the SLANG source for assembler errors. Both the generated assembly language code and the SLANG source are automatically indented to show the level of block-structured nesting. There are three kinds of block structures--DO, CASENTRY, and IF--each with many powerful features not available elsewhere. The IF block permits the choice of n segments, retaining--as a subset--the familiar two-segment choice. The DO block's iterations are controlled by any number of clauses instead of the usual one controlling test. SLANG permits the easy generation of powerful 256-byte translate tables to be used with either the TRANSLATE or TRANSLATE AND TEST machine-language instructions. An option allows generation of inverse translate tables to be used to restore transformations. Program decisions may be made according to an arbitrarily complex boolean schema. SLANG has a macro facility--available during its operation--enabling the user to easily create long or complex sequences of SLANG commands and structures. Useful macros can be created, tested, and saved independently. Macros can be made available to SLANG by the MACLIB command which references external libraries by ddname. Macro definitions can also be included directly within SLANG source programs. The SLANG compiler uses the standard Project RMAG subroutines for manipulating logic schemata, for evaluating complicated arithmetic expressions, and for macrogeneration. Hence, many new SLANG programmers will already know major elements of the syntax from prior use of other systems that use these subroutines.

Software Description: This program is written for implementation on an IBM 370/168 computer using the OS or VS operating system. It requires 500K bytes of core storage.

Related documentation: PB80-117559.

Keywords: *Software, *Compilers, *Computer programming, Computer programs, Assembly languages, Magnetic tapes, SLANG compiler, *Structured programming, RMAG project, *Software tools.

Availability: NTIS, CP **T05**, mag tape*. Source tape is in EBCDIC character set. Tapes can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer products if you have questions. Price includes documentation.

PB-294 694/5

Free Format Reading Routine.

Software. This subroutine reads 80-character records in free-format. Each data field in a record must be separated by at least one space. Input may consist of alpha data strings or of the following Fortran formatted numeric data: Integers, Fixed point, Floating point, or Scientific notation. Integers greater than the maximum integer allowed in the computer as alpha data. The user may either supply the logical unit number where the data is stored or he may pass from his program to the subroutine.

Software Description: The subroutine is written in the Fortran V programming language for compiling on a UNIVAC 1100/42 computer in the IR format. The system requires 2446 octal words of core storage.

Keywords: *Software, Records, Subroutines, Computer programs, Magnetic tapes, *Text processing, Alphanumeric data, Formats.

Availability: NTIS, CP **T05**, mag tape*. Source tape is in EBCDIC character set. Tapes can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired. Call NTIS Computer Products if you have questions. Price includes documentation.

PB-297 213/1

HEW Computer Audit System (HEWCAS) (Trademark).

Software. The HEW Computer Audit System (HEWCAS)(R) makes it practical for an auditor, with limited background in computers, to use a timesharing computer system employing the BASIC language to automatically compose COBOL programs. Upon command entered at the terminal, the system punches the COBOL programs into cards either remotely or for mailing. The cards serve as the medium for getting the COBOL programs into another computer where the audit work is to be done. The auditor can separate records into strata based on auditing criteria and apply independent statistical samples to the strata; he can create new tape or disk files; he can locate and print records duplicating data in one or more fields of other records on the same file; he can locate and print records from a second file matching one or more fields of any records on a first file, together with a printout of the matched records; he can print records which do not match on designated fields from two files; and he can accumulate records from a file into groups based on accounting or other classifying codes, and print the quantity of records and totals for any fields desired for each group.

Software Description: The program is written in the BASIC programming language for implementation on an Univac 1108 computer using the CSTS on INFONET by CSC operating system. 140K bytes of core storage are required to operate the model.

Related documentation: PB-254 385, PB-254 386.

Keywords: *Software, *Auditing, Cobol, L=BASIC, Data processing, Computer programs, Magnetic tapes, HEWCAS system, Automatic programming.

Availability: NTIS, CP **T14**, mag tape. Source tape is in EBCDIC character set. Tapes can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions. Price includes documentation.

Field 7—COMPUTER SCIENCES

PB80-125354

MLAB: An On-Line Modeling System.

Software. MLAB is an interactive system for mathematical modeling. The heart of the system is a non-linear curve-fitting procedure. Facilities for differential equation models, symbolic differentiation, root finding, graphic display and plotting, function evaluation including sums and integrals, matrix calculation, and saving and restoring data between sessions are included.
Software Description: The system is written in the SAIL programming language for implementation on a DEC system 10 or 20 operating system, or TENEX system. 80K bytes of core storage are required to operate the model.
Related documentation: PB80-125362, PB80-125370, PB80-125388, PB80-125412, PB80-125404, PB80-125396.

Keywords: *Software, Data processing, Curve fitting, Computer graphics, *Mathematical models, Differential equations, Magnetic tapes, MLAB systems.

Availability: NTIS, CP **T08**, mag tape*. Source tape is in ASII character set. Character set restricts preparation to 9 track one-half inch tape only. Identify recording mode by specifying density only. Call NTIS Computer Products if you have questions. Price includes documentation.

PB80-191323

UPGRADE: User Prompted Graphic Data Evaluation System.

Software. UPGRADE is a general graphic and statistical analysis system for use with numeric data bases. It operates in an interactive-conversational mode, employing English-language prompts and responses. The system has been used as an analytic tool in various federal studies of environmental and health data. UPGRADE analytical capabilities include interactive x-y axis plots, histograms, coordinate maps, statistical analysis via an interface with the Statistical Analysis System (SAS), and numerous data manipulation and summarization routines. Interfaces are provided for several types of environmental and environmental health data, including EPA STORET water quality, EPA SAROAD air quality, USGS NASQAN water quality and an extensive integrated data base for health, demographic and environmental quality data. Selected CEQ-developed data bases will be made available in the near future.
Software Description: Written for the IBM 370, VS operating system. 90% Fortran, 10 Assembler used for systems level facilities. IBM SORT utility used. Object code is supplied. Minimum of 500 K core required. When SAS is attached, CORE may expand beyond 500 K. Approximately 5172 tracks of on-line disk space required. There are 219 programs (subroutines) in the system.
Related documentation: PB80-191331, PB-296 719.

Keywords: *Software, *Computer graphics, *Statistical analysis, Data processing, Fortran, Assembly languages, Magnetic tapes, *Data base management systems, UPGRADE system, Interactive systems, IBM-370 computers.

Availability: NTIS, CP **T08**, mag tape. Source tape is in EBCDIC character set. Tapes can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions. Price includes documentation.

PB80-219892

COBOL Compiler Validation System Version 4.0 (1974).

Software. The Cobol Compiler Validation System is used to validate Cobol compilers and to ensure their conformance to the Federal Standard as prescribed in FIPS PUB 21-1. The system consists of a comprehensive set of audit routines, their related data, and a executive routine which prepares the audit routines for compilation in a particular hardware/operating system environment. Each audit routing is a COBOL program which includes tests and support procedures indicating the result of the tests. Audit routines are included for testing all modules of the 1974 COBOL Standard. The executive routine provides a method for resolving implementor names within the source COBOL programs. The executive routine also provides the user with a means for updating source programs and generating the operating system control cards required. Version 4.0 of the 1974 CCVS includes all of the corrections identified in Version 3.0. It also includes additional test cases for the Inter-Program Communications Module, Indexed I-O Module, Nucleus Module, Relative I-O Module, and the Table Handling Module. Test case for the Communications Module are included in the validation system for the first time. Excluded from Version 4.0 are any tests for arithmetic expressions and the ENTER statement of the Nucleus Module due to lack of definition or to their use/results.
Software Description: The program is written in the COBOL programming language for implementation on a Harris S/100 Computer using the VULCAN operating system.
Related documentation: PB80-219900, PB81-219 040, PB81-219 057.

Keywords: *Software, *Compilers, *Cobol, Computer programming, Proving, Standards, Error analysis, Verifying, Utility routines, Computer system programs, Magnetic tapes, Federal information processing standards, Data validation.

Availability: NTIS, CP **T13**, mag tape*. Source tape is in ASCII character set. Character set restricts preparation to 9 track, one-half inch tape only. Identify recording mode desired by specifying density only. Call NTIS Computer Products if you have questions. Price includes documentation.

PB80-219918

S2KPLOT - System 2000 Data Base Plotting Interface.

Software. S2KPLOT provides a direct link between any SYSTEM 2000 data base and a user-oriented plotting capability. S2KPLOT may be used in a batch mode or interactively, under the Time Sharing Option of IBM OS/MVS on IBM 370 or 303x computers. The plots created may be output immediately at a graphics terminal or saved in a disk file, to be retrieved later for either on-line or off-line processing. In addition to the plots, S2KPLOT will optionally pro-

duce two reports, showing the data used in creating each plot. Plots produced may be line, bar, pie, or United States map, by state. Numerous other options select the types of axis, grid lines, tick marks, data processing and character styles. S2KPLOT utilizes the proprietary software packages SYSTEM 2000 (INTEL Systems Corp.) and DISSPLA (Integrated Software Systems Corp.). In addition, support software for the various graphics devices used by S2KPLOT are supplied by the vendors of those devices.
Software Description: This program is written in the FORTRAN IV and ALC programming languages for implementation on an IBM 370 or 303x computer using the OS/MVS 3.8 operating system. 500K bytes of core storage are required to operate the model.
Related documentation: PB80-219934, PB80-219926.

Keywords: *Software, *Plotting, *Computer graphics, Computer programming, Mapping, Magnetic tapes, S2KPLOT computer program.

Availability: NTIS, CP **T13**, mag tape*. Source tape is in EBCDIC character set. Character set restricts preparation to 9 track, one-half inch tape only. Identify recording mode by specifying density only. Call NTIS Computer Products if you have questions. Price includes documentation.

PB81-100406

COBOL Realignment System, UNIVAC Version.

Software. COBOL programs are often difficult and time-consuming to debug and/or maintain due to the lack of readability. This is especially true when there are nested if-else statements without good indentation or when there are several different styles of record descriptions. This can happen for several reasons, (1) the program was coded poorly to begin with, (2) different people wrote different parts of the program, or (3) the program has been patched and repatched by different maintenance people. The COBOL Realignment System solves this problem by realigning a COBOL program into a more readable and standard form. The input to the system is COBOL source program which has been compiled with no errors. The output is a new source program which has been realigned along the following lines: (a) Realignment of the left margins of procedure division entries, such as indentation of if-else statement for readability of imbedded statements; (b) Blank lines before paragraphs; (c) Restructuring of record descriptions in the data division, including picture clauses beginning in column 40 and value clauses in 56, and level numbers beginning at 01 incremented by two and indented according to level number hierarchy; and (d) Resequencing of columns 1 thru 6 in increments of 10.
Software Description: The system is written in the COBOL and Assembly programming languages for implementation on a UNIVAC, Series 1100 computer, using the EXEC 8 operating system. 16K words of core storage are required to operate the model.
Related documentation: PB81-100414.

Keywords: *Software, *Cobol, Alignment, Computer programming, Computer systems programs, Legibility, Magnetic tapes, *Software tools, Software engineering, Cobol Realignment System, Univac 1100 series computers.

Availability: NTIS, CP **T07**, mag tape*. Source tape is in ASCII character set. Character set restricts preparation to 9 track, one-half inch tape only. Identify recording mode by specifying density only. Call NTIS Computer Products if you have questions. Price includes documentation.

PB81-100422

COBOL Realignment System, IBM Version.

Software. COBOL programs are often difficult and time-consuming to debug and/or maintain due to the lack of readability. This is especially true when there are nested if-else statements without good indentation or when there are several different styles of record descriptions. This can happen for several reasons, (1) the program was coded poorly to begin with, (2) different people wrote different parts of the program, or (3) the program has been patched and repatched by different maintenance people. The COBOL Realignment System solves this problem by realigning a COBOL program into a more readable and standard form. The input to the system is COBOL source program which has been compiled with no errors. The output is a new source program which has been realigned along the following lines: (a) Realignment of the left margins of procedure division entries, such as indentation of if-else statements for readability of imbedded statements; (b) Blank lines before paragraphs; (c) Restructuring of record descriptions in the data division, including picture clauses beginning in column 40 and value clauses in 56, and level numbers beginning at 01 incremented by two and indented according to level number hierarchy; and (d) Resequencing of columns 1 thru 6 in increments of 10.
Software Description: The system is written in the COBOL programming language for implementation on an IBM 360/370/3033 computer using the OS operating system. 30K bytes of core storage are required to operate the model.
Related documentation: PB81-100414.

Keywords: *Software, *Cobol, Alignment, *Computer programming, Computer systems programs, Legibility, Magnetic tapes, *Software tools, Software engineering, Cobol Realignment Systems, IBM-360 computers, IBM-370 computers, IBM-3030 computers.

Availability: NTIS, CP **T07**, mag tape*. Source tape is in EBCDIC character set. Tapes can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions. Price includes documentation.

PB81-128365

General Purpose Interactive Plotting Programs.

Software. The program contains three individual plotting modules: CARPLT, SEMLOG, and LOGPLT. Specifically, the program has been designed for the working data analyst to enable him to simply and rapidly generate report quality cartesian, semi-log, and log-log data plots. Each module can uniquely plot 12 sets of data on a single graph with each data set consisting of up to 100 data points. Various plotting and labeling options are incorporated. However,

no special knowledge is required to use the program, since all program required information is obtained through interactive requests that essentially amount to yes/no responses on the part of the user.
Software Description: The program is written in the Fortran programming language for implementation on a DEC-10 computer using the 1080/KL operating system. 18K bytes of core storage are required to operate the model.
Related documentation: PB81-128373.

Keywords: *Software, *Plotting, Computer programming, Computer systems programs, Cartesian coordinates, Graphs, Fortran, Magnetic tapes, DEC-10 computers.

Availability: NTIS, CP **T03**, mag tape*. Source tape is in ASCII character set. Character set restricts preparation to 9 track, one-half inch tape only. Identify recording mode by specifying density only. Call NTIS Computer Products if you have questions. Price includes documentation.

PB81-128399

NBS Minimal Basic Test Programs, Version 2.

Software. The set of programs was developed by NBS for the purpose of testing conformance of implementations of the computer language BASIC to the American National Standard for Minimal Basic, ANSI X3.60-1978. The Department of Commerce has adopted this ANSI standard as Federal Information Processing Standard 68. By submitting the programs to a candidate implementation, the user can test the various features which an implementation must support in order to conform to the standard. While some programs can determine whether or not a given feature is correctly implemented, others produce output which the user must then interpret to some degree.
Software Description: The system is written in the BASIC programming language for implementation on a DEC-10 computer using the TOPS-10 operating system. 10K bytes of core storage is required to operate the system.
Related documentation: PB81-128407, PB81-128415.

Keywords: *Software, Computer programming, Standards, National government, Computer programs, Programming languages, Verifying, Magnetic tapes, *Software tools, BASIC, *Federal information processing standards, Software engineering.

Availability: NTIS, CP **T05**, mag tape*. Source tape is in ASCII character set. Character set restricts preparation to 9 track, one-half inch tape only. Identify recording mode by specifying density only. Call NTIS Computer Products if you have questions. Price includes documentation.

PB81-130114

OMEGA - Interactive Data Entry and Validation System.

Software. OMEGA is a generalized, interactive data entry and validation system. Operating under the Time Sharing Option (TSO) of IBM OS/MVS on IBM 370 and 303X computers, OMEGA supports the IBM 3270 terminal (or equivalent) and a variety of ASCII CRT terminals in a full-screen, formatted mode. Users enter data in a fill-in-the-blanks format on the CRT terminal and transmit the data to OMEGA, where the data is validated. Each field in error is flagged and a descriptive error message is returned. A transaction, or screen, must be entirely correct before it is accepted by OMEGA. A file of transactions can be saved in a data library that can be shared by multiple users. Security features in OMEGA can limit access to files in the library to those created by an individual user. One or more files of transaction in the data library can be processed to form a sequential disk file to be used by a batch or another interactive application.
Software Description: The system is written in the ALC programming language for implementation. 250K bytes of core storage are required to operate the model.
Related documentation: PB81-130122, PB81-130130, PB81-130148.

Keywords: *Software, *Data storage, Computer programming, Verifying, Validity, Data processing terminals, Magnetic tapes, *OMEGA system, *File management, File maintenance, Data management systems.

Availability: NTIS, CP **T14**, mag tape*. Source tape is in EBCDIC character set. Tapes can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions. Price includes documentation.

PB81-151110

VIEWGRAPH - Conversational Computer Graphics Program.

Software. This is an interactive conversational computer program which allows the user to design viewgraphs or large-sized flip charts. Shaded characters, color of printed lines, height or text and output device (such as Tektronix hardcopy unit, Tektronix screen, Tektronix 4662 plotter or Zeta plotter) are all optional features that can be chosen interactively. The text information can be entered via the terminal keyboard or from a data file.
Software Description: The program is written in the FORTRAN V programming language for implementation on a UNIVAC 1108 computer using the level 33R3 operating system. 55K bytes of core storage are required to operate the model.
Related documentation: PB81-151128.

Keywords: *Software, Computer programming, Charts, Graphic methods, Plotting, Plotters, Graphs(Charts), Magnetic tapes, Data displays, *Computer graphics, VIEWGRAPH computer program, *Interactive graphics.

Availability: NTIS, CP **T03**, mag tape*. Source tape is in FIELDATA character set. Character set restricts preparation to 9 track, one-half inch tape only. Identify recording mode by specifying density only. Call NTIS Computer Products if you have questions. Price includes documentation.

PB81-151136

SHADED PIE - Conversational Computer Graphics Program,

Software. SHADED PIE is an interactive program that will allow non-computer orientated users to produce elaborate pie charts containing three lines in the title, different character size and style of letter-

ing, data expressed as percentages or actual values, four positions for pie section annotation, pie section explosion. Output can be sent to the Tektronix screen, hardcopy unit or 4662 plotter or to the off-line zeta plotter.
Software Description: The program is written in the FORTRAN V programming language for implementation on a UNIVAC 1108 computer using the EXEC 8, level 33R3 operating system. 55K bytes of core storage are required to operate the model.
Related documentation: PB81-151 144.

Keywords: *Software, Computer programming, Charts, Graphic methods, Plotting, Plotters, Graphs(Charts), Data displays, Magnetic tapes, *Computer graphics, SHADED PIE computer program, *Interactive graphics.

Availability: NTIS, CP **T03**, mag tape*. Source tape is in FIELDATA character set. Character set restricts preparation to 9 track, one-half inch tape only. Identify recording mode by specifying density only. Call NTIS Computer Products if you have questions. Price includes documentation.

PB81-151151

EZ-PLOT - Conversational Computer Graphics Program.

Software. EZ-PLOT is a series of interactive computer programs which convert report data into graphic displays. The display is produced easily without programmer intervention by simply entering the information required to produce the desired graph in answer to a series of questions displayed at the terminal. The answers determine the type of graph. The four basic types are: bar graph, curve plot, pie chart and 3-dimensional chart. The following features are also available: plain or report style lettering, Axis and Tic mark labeling, Grids, negative data values, and messages. The output can be plotted on the Tektronix screen, Zeta plotter or Tektronix 4662 plotter.
Software Description: The system is written in the FORTRAN V programming language for implementation on a UNIVAC 1108 computer using the EXEC 8, level 33R3, operating system. 65K bytes of core storage are required to operate the model.
Related documentation: PB81-151177, PB81-151 169.

Keywords: *Software, Computer programming, Charts, Graphic methods, Plotting, Plotters, Graphs(Charts), Data displays, Magnetic tapes, *Computer graphics, EZ-plot computer program, *Interactive graphics.

Availability: NTIS, CP **T03**, mag tape*. Source tape is in FIELDATA character set. Character set restricts preparation to 9 track, one-half inch tape only. Identify recording mode by specifying density only. Call NTIS Computer Products if you have questions. Price includes documentation.

PB81-182925

Arsbuild - Teletype Report Optimizer.

For complete citation, see 6 **Communications.**

PB81-182974

Plotting Routine Dimens.

Software. Dimens is a Fortran callable subroutine which is used to draw dimensions for drafting purposes. Three types of dimensioning are available and include the horizontal lines, the arrows, and the dimensioned value. This routine uses two routines from the standard Calcomp Library. The user must supply his own calling program.
Software Description: This routine was written in the FORTRAN IV programming language for implementation on a DEC-10 computer using the TOPS-10 operating system. 262 words of core storage are required to operate the routine.

Keywords: *Software, Computer programming, *Computer graphics, Drafting(Drawing), Fortran, DIMENS subroutine, Calcomp plotters, *Plotting, Magnetic tapes.

Availability: NTIS, Mag Tape $95.00, mag tape. Source tape is in EBCDIC character set. Tapes can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions.

PB81-183048

MIL-STD 1750 Assembler (Alap)/Linker (Links).

Software. The software referred to in this narrative is the MIL-STD 1750 assembler (Alap) and MIL-STD 1750 Linker (Links). The host computer is the IBM 370 (Itel AS/5), MVS operating system. The 1750 assembler (Alap), assembles the MIL-STD 1750 assembly language programs, and produces a listing file and binary relocatable file which is suitable for linking (Links). The 1750 linker links programs which have been compiled by the Jovial J73 compiler (with the 1750 option), producing a relocatable file. The linker will also link programs which have been assembled by the 1750 assembler producing a relocatable file. The linker also produces a map which gives the absolute location of the linked code.
Software Description: This program is written in FORTRAN H (extended) and ALC (assembly language) for implementation on IBM 370 model computers using the MVS operating system. The memory requirement is 500K.
Related documentation: PB81-183055, PB81-183071, PB81-183063.

Keywords: *Software, *Software tools, Computer programming, *Assembler routines, Computer systems programs, Magnetic tapes, Compilers.

Availability: NTIS, CP **T08**, mag tape. Source tape is in EBCDIC character set. Tapes can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions. Price includes documentation.

PB81-183089

MIL-STD 1750 Interpretive Computer Simulator.

Software. The software referred to in this narrative is the MIL-STD 1750 Interpretive Computer Simulator. The host computer is the Decsystem-10, Tops-10 operating system with a KA, KI, or KL processor. The 1750 simulator simulates hardware execution of 1750 code. The simulator has the capability for tracing instructions and data, dumping of simulated memory and registers, and setting memory or regis-

ters. The simulator is compatible with the absolute load file produced by Links (a MIL-STD 1750 linker).
Software Description: This program is written in the J73/I language for implementation on the host computer. The memory requirement is 117K words.
Related documentation: PB81-183113, PB81-183105, PB81-183097.

Keywords: *Software, *Software tools, Computer programming, Simulators, *Simulator routines, Magnetic tapes, Computer systems programs, *Interpreter routines.

Availability: NTIS, CP **T11,** mag tape. Source tape is in ASCII character set. Character set restricts preparation to 9 track, one-half inch tape only. Identify recording mode by specifying density only. Call NTIS Computer Products if you have questions. Price includes documentation.

PB81-183121

AN/AYK-15A (MIL-STD) 1750) Interpretive Computer Simulator.

Software. The software referred to in this narrative is the MIL-STD 1750 Interpretive Computer Simulator. The host computer is the IBM 370 (Itel AS/5) MVS operating system. The 1750 simulator simulates hardware execution of 1750 code. The simulator has the capability for tracing instructions and data, dumping of simulated memory and registers, and setting memory or registers. The simulator is compatible with the absolute load file produced by Links (a MIL-STD 1750 linker).
Software Description: This program is written in the J73/I language for implementation on the host computer. The memory requirement is 500K.
Related documentation: PB81-183147, PB81-183139, PB81-183154, PB81-183097.

Keywords: *Software, *Software tools, Computer programming, Simulators, *Simulator routines, Magnetic tapes, Computer systems programs, *Interpreter routines.

Availability: NTIS, CP **T11,** mag tape. Source tape is in EBCDIC character set. Tapes can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions. Price includes documentation.

PB81-183162

MIL-STD 1750 Alap Assembler/Linker (Links).

Software. The software referred to in this narrative is the MIL-STD 1750 Assembler (Alap) and MIL-STD 1750 Linker (Links). The host computer is the Decsystem 10, Tops-10 operating system with a KA, KI, or KL processor. The 1750 assembler (Alap) assembles MIL-STD 1750 assembly language programs and produces a listing file and binary relocatable file which is suitable for linking the 1750 linker links programs which have been compiled by the Jovial J73 compiler (with the 1750 option), with a resulting relocatable file. The linker will also link programs which have been assembled by the 1750 assembler with a resulting relocatable file. The linker also produces a map which gives the absolute location of the linked code.
Software Description: This program is written in the FORTRAN language for implementation on the host computer. The memory requirements are 49K words for the linker and 67K words for the assembler.
Related documentation: PB81-183196, PB81-183188, PB81-183170, PB81-183204.

Keywords: *Software, *Software tools, Computer programming, *Assembler routines, Computer systems programs, Magnetic tapes, Compilers.

Availability: NTIS, CP **T08,** mag tape. Source tape is in ASCII character set. Character set restricts preparation to 9 track one-half inch tape only. Identify recording mode by specifying density only. Call NTIS Computer Products if you have questions. Price includes documentation.

PB81-184657

System Queue Information for UNIVAC 1108.

Software. UNIVAC standard 1100 series EXEC does not provide for que status at the user level. This package allows the user to obtain this information through interactive, batch or a combination. It provides status by run ID, que status by priority or que status by site ID.
Software Description: The system is written in the COBOL and Assembler programming languages for implementation on a UNIVAC 1108 computer using the EXEC level 32 operating system. The computer memory requirement is 16K.
Related documentation: PB81-184665.

Keywords: *Software, Computer programming, Computer systems programs, Magnetic tapes, *UNIVAC-1108 computers, *Queueing, *Software tools.

Availability: NTIS, CP **T05,** mag tape. Source tape is in ASCII character set. Character set restricts preparation to 9 track one-half inch tape only. Specify recording mode desired. Call NTIS Computer Products if you have questions. Price includes documentation.

PB81-184673

Workload Control and Tape Library Maintenance.

For complete citation, see 12 **Library and Information Sciences.**

8. ENERGY

AD-A056 226/4

The Building Loads Analysis and System Thermodynamics Program (BLAST). Release Number 1.

Software. The Building Loads Analysis and System Thermodynamics (BLAST) program is a sophisticated set of subprograms for predicting energy consumption in buildings. The four major subprograms are: (1) the input processor, which parses the high-level input language and sets up the building/systems/plant descriptions; (2) the building loads subprogram, which computes the hourly space load in a building or zone based on the user's description of the building/zone and hourly weather data; (3) the air distribution system simulation subprogram, which calculates the coil energy demands, fan power, etc., based on the user's description of the air handling

system and the hourly space load data calculated by the previous subprogram; and (4) the central energy plant simulation subprogram, which calculates energy consumption of a central/solar/total energy plant based on the user's description of the plant and the hourly coil loads calculated by the previous subprogram, and performs a life-cycle cost analysis of the plant. In addition to conventional boiler-chiller equipment, the central energy plant subprogram includes solar heating and cooling systems, total energy systems, and commercial utility systems.
Software Description: The program is written in Control Data Corporation (CDC) FORTRAN Extended, Version 4, and can be used on CDC 6000/7000 series computers without major modifications. Software Description: The program is written in the FORTRAN programming language for implementation on a Control Data Corporation computer using the Scope 3.4 operating system. 62K bytes of core storage are required to operate the model 6400.
Related documentation: AD-A048 734, AD-A048 982.

Keywords: *Software, *Energy consumption, *Buildings, *Computer programs, Magnetic tape, Subroutines, FORTRAN, Flow charting, Algorithms, Heating plants, Centralized, Air conditioning equipment, Ventilation, Thermal insulation, Meteorological data, Computer program documentation, *BLAST computer program, CDC-6400 computers.

Availability: NTIS, CP **T06**, mag tape. Available from NTIS, Springfield, VA 22161. Source tape is in BCD character set. Tape(s) can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, tract, density and parity. Price includes documentation.

PB-248 066/3

Energy Supply Planning Model, System Tape.

Models-simulation. The specific modeling work reported here was stimulated by the need to explore the feasibility of proposed U.S. energy policies in terms of the requirements for specific societal resources associated with the construction and operation of energy supply and energy transportation facilities needed to implement these energy supply policies. The Energy Supply Planning Model is designed to convert future (1975 to 1995) energy mixes to resource requirements schedules. With this planning tool, the feasibility of various proposed mixes can be assessed in terms of the time, capital, manpower, materials, and construction schedules required for the specified energy supply system. The tape, created by dumping the entire contents of a 2314 disk pack using IEHDASDR, may require special arrangements between NTIS and the user in order for the user to receive the contents in a useable condition. The source recommends use of 2314 disk packs to use the programs and data.
Software Description: The program is written in the Fortran programming language for implementation on an IBM 360 or 370 computer using the OS operating system. The computer memory requirement is 140K.
Related documentation: PB-245 382, PB-245 383.

Keywords: *Models-simulation, Fuel management, *Energy models, Resource allocation, Energy requirements, Electric power plants, Transportation, Construction, Refineries, Facilities, Regional planning, National government, Energy policy, Capitalized costs, Manpower, Requirements, Scheduling, Materials estimates, Magnetic tapes, National planning and development.

Availability: NTIS, CP **T05**, 1 reel mag tape. Magnetic tape available in 9 track, 1600 bpi, odd parity, EBCDIC, ONLY. Price includes documentation.

PB-248 461/6

Energy Supply Planning Model, Card Image Version.

Models-simulation. The Energy Supply Planning Model is designed to convert future (1975-1995) energy mixes to resource requirements schedules. With this planning tool, the feasibility of various proposed mixes can be assessed in terms of the time, capital, manpower, materials, and construction schedules required for the specified energy supply system. The major usefulness of the model is expected to lie in its capability to explore the feasibility of various energy policies, their implications, and their desirability. A tape of card images has been prepared containing all the software and data for the Energy Supply Planning Model. The tape has 11 data sets, each data set corresponding to one of the computer programs of the model. Each data set appears on the tape in the same order and with the same name as that listed under the mnemonic of Table 2-1 on page 2-2 of volume II of the documentation. Each data set contains all source programs, data and control cards that are applicable to that particular computer program. Thus, the first data set on the tape, named FMG, contains source programs, data and control cards for the Fuel Mix Generator, etc. The tape characteristics appear on a label on the tape.
Software Description: The program is written in the Fortran programming language for implementation on an IBM 360/65 computer using the OS operating system. The computer memory requirement is 140K.
Related documentation: PB-245 382, PB-245 383.

Keywords: *Models-simulation, *Energy models, Energy requirements, Energy policy, Planning, Magnetic tapes, Feasibility, Energy management.

Availability: NTIS, CP **T04**, 1 reel mag tape. Specify tape recording mode desired: 9 track, EBCDIC; or 7 track, BCD. Price includes documentation.

PB-263 953/2

Marginal Cost and Pricing of Electricity: An Applied Approach (Computer Programs). Release No. 1.

Software. The computer programs supplement the report 'The Marginal Cost and Pricing of Electricity: An Applied Approach.' The purpose of this study is to provide a practical guide for the analysis of the marginal cost structure of electric utilities for the purpose of designing electricity tariffs. The intended audience consists of those who have a working familiarity with electric power systems and who desire a general, but less abstract, discussion of the marginal cost structure of electric power systems than

has heretofore been available. The premise states that tariffs which reflect the principal variations in marginal costs are superior to those which do not. A listing of the computer programs appears as Appendix C in the report. The principal purposes of the program package are to organize the data for convenient, low cost determination of marginal cost structure, and to provide a means for rapid testing of the importance of the various inputs to the final results.

Software Description: The system is written in the Fortran IV programming language for implementation on an IBM 370/145 computer using the OS/VS1 version, 4.0 level operating system. 128K bytes of core storage are required to operate the model.

Related documentation: PB-255 967.

Keywords: *Software, *Electric utilities, *Cost analysis, Electric power demand, Rates(Costs), Tariffs, Peak loads, Computer programs, Fortran, Prices, Power systems, Magnetic tapes, Marginal cost pricing.

Availability: NTIS, CP **T03**, mag tape. Source tape is in BCD character set. Tape(s) can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions. Price includes documentation.

PB-269 450/3

Bush Dome Model - Computing Movement of Injected Crude Helium.

For complete citation, see 15 **Natural Resources and Hydrology.**

PB-273 592/6

HUD Residential Solar Economic Performance Model.

For complete citation, see 2 **Business and Economics.**

PB80-111560

HUD Residential Solar Viability Program (RSVP/2): Computer Tape.

Models-simulation. This item includes the source code and all necessary data files for the HUD Residential Solar Viability Program (RSVP/2). The tape contains two complete copies of the program and data files, the first copy in ASCII, the second in EBCDIC. The model is an interactive computer program that permits analysis of a wide range of residential solar energy applications using active solar systems for actual conditions of location, housing type, market economics, and other economic or financial factors. Output is provided in a number of report formats oriented to different users. The program can be used to access the economics of both single and multi-family solar applications. The user is given flexibility in specifying either a small basic set of inputs or best-estimate default values for input items not known or readily available to the user. Available documentation includes a Users Manual and a Programmers Manual.

Software Description: This program is written in the FORTRAN programming language for implementation on a UNIVAC 1108 computer using the EXEC 8 operating system. A minimum of 55 K words of core storage is needed to use the system.

Related documentation: PB80-111586, PB80-111578.

Keywords: *Models-simulation, Magnetic tapes, Computerized simulation, Residential buildings, Hot water heating, Space heating, Market research, Cost analysis, Solar space heating, Solar water heating.

Availability: NTIS, CP **T03**, mag tape*. Source tape is in ASCII character set. Character set restricts preparation to 9 track one-half inch tape only. Identify recording mode by specifying density only. Call NTIS Computer Products if you have questions. Price includes documentation.

PB80-148398

DOE-2 Building Energy Use Analysis Program.

Software. DOE-2 is a public-domain computer program for energy use analysis of residential and commercial buildings. DOE-2 calculates the hour-by-hour energy use of a building and its life-cycle cost of operation given information on the building's location, construction, operation, and heating, ventilating and air conditioning equipment. DOE-2 can be used for (1) the design of energy-efficient new buildings; (2) analysis of existing buildings for energy-conserving modifications; and (3) calculation of design energy budgets. It is intended for architects and engineers with a basic knowledge of the thermal performance of buildings. DOE-2.1 is the computer program which has been selected as part of the SET (Standard Evaluation Technique) of the new proposed Federal BEPS (Building Energy Performance Standards).

Software Description: The program is written in Fortran for implementation on a variety of computers.

Related documentation: PB80-148380.

Keywords: *Software, *Buildings, Computer programming, Space heating, Air conditioning, Ventilation, Heating load, Cooling load, Benefit cost analysis, Magnetic tapes, Energy analysis, DOE-2 computer program, *Energy consumption, Energy audits, Energy conservation, Life-cycle cost, CDC-6000 computers, CDC-7000 computers.

Availability: NTIS, Mag Tape $485.00, mag tape*. Source tape is in BCD or EBCDIC character set. Tapes can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions. Documentation available as PB80-148380, PC$150.00 (with binders), or PB80-209307, PC$130.00 (without binders).

PB81-112179

End Use Energy Consumption Data Base: Transport Sector Retrieval Program.

Software. The Retrieval Program tape contains 'DBRS', a computer program designed to retrieve data from the End Use Energy Consumption Data Base. DBRS is now in operation at ORNL. It operates on-line and is currently set up to read the data provided on the ORNL tape but it is capable of retrieving data from any data base.

Software Description: The program is written in the Fortran-10 programming language for implementation on a IBM 3033 MP computer using the MVS 3.8 operating system. 256K bytes of core storage are required to operate the model.
Related documentation: PB81-112187, PB81-112203.

Keywords: *Software, *Fuel consumption, Rail transportation, Highway transportation, Water transportation, Pipeline transportation, Automobiles, Buses, Trucks, Motorcycles, Boats, Gas pipelines, Data, Fortran, *Transportation, *Energy consumption, Transportation sector, DBRS computer program, Fortran 10, IBM 3033 MP.

Availability: NTIS, CP **T05**, mag tape. Source tape is in EBCDIC character set. Tapes can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions. Price includes documentation.

PB81-183212

DOE-2 Building Energy Use Analysis Program (IBM Machine Version).

For complete citation, see 5 **Civil and Structural Engineering.**

PB81-184913

Oil and Gas Reservoir Per Se Dynamic Model with Associated Economic Model.

For complete citation, see 15 **Natural Resources and Hydrology.**

PB81-200685

Short-Term Integrated Forecasting System.

Models-simulation. Provides a national, monthly data base and accounting framework for the national energy supply, demand, stocks, and conversion processes, (refineries and electric utilities). This model balances historical data and forecasts the entire energy network, for up to 3 years in the future.
Software Description: The model is written in the FORTRAN IV programming language for implementation on an IBM 370/3033 computer using the OS/VS2 operating system.

Keywords: *Models-simulation, Stockpiles, Refineries, Electric utilities, *Forecasting, Magnetic tapes, *Energy models, *Energy supplies, Energy demand, NTISDE.

Availability: NTIS, CP **T05**, mag tape. Source tape is in EBCDIC character set. Tapes can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions.

PB81-200693

Reserves Allocation and Mine Cost Model.

Models-simulation. Develops regional supply-price relationships for 40 coal types based on the EIA (formerly Bureau of Mines) Demonstrated Reserve Base, engineering estimates of mining costs, and regional and coal-type-specific cost elements. This model serves as a major component of the Midterm Energy Forecasting System.

Software Description: The model is written in the FORTRAN programming language for implementation on an IBM 370/3033 computer using the OS/VS2 operating system.

Keywords: *Models-simulation, Coal, Supply(Economics), Cost analysis, Forecasting, Magnetic tapes, *Coal mining, Energy models, *Energy supplies, NTISDE.

Availability: NTIS, CP **T03**, mag tape. Source tape is in EBCDIC character set. Tapes can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions.

PB81-200727

Midterm Oil and Gas Supply Model.

Models-simulation. Projects domestic oil and natural gas production for the lower 48 States and southern Alaska. Forecasts for 30 years are based on economic and engineering factors affecting oil and gas supply. This operational model develops regional oil and gas supply curves that serve as input to the Midterm Energy Forecasting System. The model is a dynamic simulation that contains separate submodels for oil and gas supply. Each submodel contains modules that describe drilling and regional allocation, predict annual production based on exploratory and developmental factors, and calculates a minimum acceptable price for the annual quantity of proved reserves.
Software Description: The model is written in the FORTRAN programming language for implementation on an IBM 370/3033 computer using the OS/VS2 operating system.

Keywords: *Models-simulation, *Crude oil, *Natural gas, Production, Forecasting, Magnetic tapes, *Oil recovery, *Energy models, Energy forecasts, NTISDE.

Availability: NTIS, CP **T05**, mag tape. Source tape is in EBCDIC character set. Tapes can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions.

PB81-201212

Conceptual Capital Cost Model.

Models-simulation. Provides a rapid means of estimating future capital requirements for construction of different types of central station electric powerplants under various sets of economic and engineering design assumptions, CONCEPT, which is operational, models the construction and capital expense stream (including escalation and interest as a function of the number of generating units, their construction times, geographic locations, plant design and size, and factor cost indexes).
Software Description: The model is written in the FORTRAN programming language for implementation on an IBM 370/3033 computer using the OS/VS2 operating system. The computer memory requirement is 500K.

Keywords: *Models-simulation, *Electric power plants, *Capitalized costs, Cost estimates, *Cost estimates, NTISDE.

Field 9—ENVIRONMENTAL POLLUTION AND CONTROL

Availability: NTIS, Mag Tape $95.00, mag tape. Source tape is in EBCDIC character set. Tapes can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions.

PB81-201220

Long-Term Energy Analysis Package.

Models-simulation. Describes the overall energy system of the United States, from 1975 to 2030, in 5-year intervals. The various processes of energy production, conversion, transportation, and end use are individually represented. A representation of market penetration is used to analyze new technology contributions over the forecast period. A particular model constructed using LEAP consists of network description of the problem from energy sources to energy uses, combining appropriated processes where necessary. The solution to such a problem describes energy flows and prices, over the network, for the time interval. This model is used to produce the long-term forecasts for the EIA Annual Report to Congress, Volume III.
Software Description: The model is written in the FORTRAN programming language for implementation on an IBM 370/3033 computer using the OS/VS2 operating system.

Keywords: *Models-simulation, *Forecasting, Production, Conversion, Magnetic tapes, *Energy models, Marketing research, Energy consumption, NTISDE.

Availability: NTIS, CP **T11**, mag tape. Source tape is in EBCDIC character set. Tapes can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions.

PB81-201238

Mid-Term Energy Forecasting System, Demand Analysis System.

Models-simulation. This is an intertemporal simulation model of the U.S. energy demand with four major components: the Structural Residential Model, the Structural Commercial Model, the Reduced Form Industrial Model, and the Structural Transportation Model. DAS is the demand component of the mid-term energy forecasting system and it forecasts the quantity of fuel demanded by major consuming sectors of (residential, commercial, industrial, and transportation) as a function of prices, macroeconomic variables, and population through 1995. The model can be used to assess the impact of changing energy prices and economic growth trends on the level and composition of fuel demand. Subcomponents of DAS evaluate the impact of these variables on the efficiency and utilization of energy using capital equipment in the residential, commercial, and transportation sectors. The model can also be used to assess the impact of various conservation measures--appliance standards, building standards, and automobile efficiency standards on energy demand.
Software Description: The model is written in the FORTRAN programming language for implementation on an IBM 370/3033 computer using the OS/VS2 operating system.

Keywords: *Models-simulation, Forecasting, Magnetic tapes, *Energy models, Energy demand, Residential sector, Commercial sector, Industrial sector, Transportation sector, Fuel demand, NTISDE.

Availability: NTIS, CP **T05**, mag tape. Source tape is in EBCDIC character set. Tapes can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions.

PB81-201246

Enhanced Oil Recovery Model.

Models-simulation. Projects U.S. production potential for five enhanced oil recovery methods. It can also analyze the impact of varying price trajectories and policy options such as loan guarantee programs. Forecasts are for 20 years in annual steps for a sample of reservoirs. Supply predictions will be input to the Midterm Energy Forecasting System. This operational model uses engineering estimates to determine production technologies appropriated for different reservoirs.
Software Description: The model is written in the FORTRAN and COBOL programming language for implementation on an IBM 370/3033 computer using the OS/VS2 operating system.

Keywords: *Models-simulation, *Oil recovery, Production, Forecasting, Magnetic tapes, *Crude oil, *Enhanced recovery, *Energy models, NTISDE.

Availability: NTIS, CP **T05**, mag tape. Source tape is in EBCDIC character set. Tapes can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions.

9. ENVIRONMENTAL POLLUTION AND CONTROL

AD-A031 027/6

Airport Vicinity Air Pollution Model Computer Source Code.

Models-simulation. The Airport Vicinity Air Pollution (AVAP) Model is a Fortran IV computer source program. The AVAP model is a comprehensive airport simulation model which can serve as a tool in evaluating the total air quality impact of all airport operations on the airport vicinity. The model evaluates aircraft, airport non-aircraft, and environs sources and computes pollution concentrations due to each. Input is required for airport configuration, aircraft and ground vehicle operation, fixed sources, and meteorology. Also listed is a copy of an input data set for Washington National Airport.
Software Description: The program is written in the FORTRAN IV programming language for implementation on an IBM 360/195 computer using the OS version, HASP level operating system. 340K bytes of core storage are required to operate the model.
Related documentation: AD-A020 352.

Keywords: *Models-simulation, *Air pollution, *Airports, Computer programming, Computerized simulation, FORTRAN, Models, Envi-

ronmental protection, Impact, Communities, Assessment, Aircraft, Vehicles, Air quality, Sources, Programming languages, Inventory, Emission, Dispersion relations, Meteorological data, Airport models, Airport vicinity air pollution model.

Availability: NTIS, CP **T06**, mag tape. Source tape is in EBCDIC character set. Tape can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, tract, density, and parity. Call NTIS Computer Products if you have questions. Price includes documentation.

PB-208 753/4

Air Quality Implementation Planning Program (IPP) Computer Program Tape.

Software. The Ipp computer program file contains all eight programs described in the Air Quality Implementation Planning Program, Volume 2 Programmers Manual (PB-198 300). The IBM 360 programs have been written as eight unique data sets. These cover the following: Source data management, pollution concentrations source contribution file merge, control cost and its file update, emission standards and their file updata, and regional strategies. The records are 80 bytes in length and each record is a card image of a source language (Fortran or Cobol) statement.

Related documentation: PB-198 300/6, PB-198 299/0.

Keywords: *Software, *Air pollution, Regional planning, Computer programs, Data processing, Sulfur oxides, Particles, Implementation air pollution planning program, Air pollution standards, Air pollution abatement.

Availability: NTIS, CP **T03**, 1 reel mag tape. Specify tape recording mode desired: 7 track, Bcd or 9 track, Ebcdic. Price includes documentation.

PB-219 469/4

Mathematical Simulation of Ammonia Stripping Towers for Wastewater Treatment.

Models-simulation. The computer program can be used for preliminary design and cost estimation of ammonia stripping towers and cooling towers used in the treatment of wastewater. Crosscurrent and countercurrent tower configurations are included in the program. The mathematical model considers the effect of temperature drop throughout the stripping tower. Capital and operation and maintenance costs are also calculated.

Software Description: The program is written in Fortran for implementation on an IBM 1130 computer.

Related documentation: PB-220 057/4.

Keywords: *Models-simulation, *Sewage treatment, Computerized simulation, Waste water, Computer programs, Mathematical models, Structural design, Cost estimates, Cooling towers, Stripping(Distillation), *Ammonia stripping towers.

Availability: NTIS, CP **T03**, 1 reel mag tape. Specify tape recording mode desired: 7 track, Bcd; or 9 track, Ebcdic. Price includes documentation.

PB-219 470/2

Simulation of the Time-Dependent Performance of the Activated Sludge Process Using the Digital Computer.

Models-simulation. The computer program simulates the time-depandent behavior of the biological aspects of the activated sludge process. Generally accepted relationships for biological activity are used. The program numerically integrates the mass balance and biological rate equations which are assumed to represent the process. Three classes of microorganisms are considered: heterotrophs, Nitrosomonas and nitrobacter. This mathematical model has been used to investigate a number of schemes for automatic control of the activated sludge process.

Software Description: The program is written in Fortran for implementation on an IBM 1130 computer.

Related documentation: PB-217 083/5.

Keywords: *Models-simulation, *Activated sludge process, *Computerized simulation, Time dependence, Computer programs, Digital computers, Microorganisms, *Sewage treatment, Fortran programming language.

Availability: NTIS, CP **T03**, 1 reel mag tape. Specify tape recording mode desired: 7 track, Bcd; or 9 track, Ebcdic. Price includes documentation.

PB-219 471/0

Preliminary Design and Simulation of Conventional Wastewater Renovation Systems Using the Digital Computer.

Software. The computer program can be used to compute the quasi-steady-state performance and cost of a fixed conventional activated sludge wastewater renovation system. The program calculates the performance and cost of the system as a whole based on relationships that have been developed for the process individually. An influent stream vector and decision variables are input. This system includes primary settling, activated sludge, sludge thickening, anaerobic digestion of primary and waste activated sludge, sludge elutriation, vacuum filtration of sludge, sludge incineration, and sludge drying beds.

Software Description: The program is written in Fortran for implementation on an IBM 1130 computer.

Related documentation: PB-215 409/4.

Keywords: *Software, *Sewage treatment, *Computerized simulation, *Activated sludge process, Systems analysis, Computer programs, Waste water, Cost analysis, Fortran programming language.

Availability: NTIS, CP **T03**, 1 reel mag tape. Specify tape recording mode desired: 7 track, Bcd; or 9 track, Ebcdic. Price includes documentation.

PB-219 473/6

A Generalized Computer Model for Steady-State Performance of the Activated Sludge Process - Final Version.

Models-simulation. The computer program is a steady-state model of the conventional activated sludge process which is flexible enough to simulate the performance of any of the models proposed (complete mix, plug flow, multiple aeration tanks, step aeration, step return flow, contact stabilization, extended aeration, etc.). Two classes of microorganisms are considered: heterotrophs and nitrosomas. The mathematical model allows the maximum rate constant for synthesis to vary with process loading. Another computer program is also included which simulates a fill and draw bench experiment in which activated sludge is mixed with substrate in any proportion. The program uses Runge-Kutta method of numerical integration to compute the biological activity as a function in the batch activated sludge experiment.

Software Description: The program is written in Fortran for implementation on an IBM 1130 computer.

Related documentation: PB-192 764/9.

Keywords: *Models-simulation, *Activated sludge process, *Computerized simulation, Microorganisms, *Sewage treatment, Mathematical models, Numerical integration.

Availability: NTIS, CP **T03**, 1 reel mag tape. Price includes documentation.

PB-222 761/9

Wastewater Treatment Plant Cost Estimating Program.

Software. The computer program calculates the capital, amortization, operation and maintenance, and total treatment costs associated with building and operating wastewater treatment plants. Both conventional and tertiary unit processes can be included. The program calculates and prints out the costs for each unit process and sums the costs for the entire treatment system. The user need only supply various design parameters as input. It is also possible to input an amortization factor, construction cost index, and hourly wage rates. The separate related documentation report contains a program listing.

Software Description: The program is written in the Fortran programming language for implementation on an IBM 1130 computer.

Related documentation: PB-222 762/7.

Keywords: *Software, *Sewage treatment, *Cost estimates, Capitalized costs, Operating costs, Amortization, Design criteria, Construction costs, Cost indexes, Cost engineering, Trickling filtration, Activated sludge process, Sedimentation, Aerobic processes, Anaerobic processes, Aeration, Lagoons(Ponds), Incinerators, Sludge digestion, Chlorination, Sewage filtration, *Waste water, Sewage treatment plants, Tertiary sewage treatment.

Availability: NTIS, CP **T03**, 844 cards*. Specify tape recording mode desired. Price includes documentation.

PB-222 764/3

Executive Digital Computer Program for Preliminary Design of Wastewater Treatment Systems.

Software. Presented are cards for a computer program (FORTRAN, IBM 1130) which can be used to compute the quasi-steady-state performance and cost of groups of conventional and advanced wastewater treatment unit processes arranged in any configuration. Each subroutine computes the performance and cost of a single unit process. An influent stream vector and decision variables are input. An accompanying report (PB-222 765) gives the program listing.

Related documentation: PB-222 765/0.

Keywords: *Software, *Sewage treatment, Punched cards, Cost estimates, Fortran, Water treatment, Sedimentation, Aeration, Trickling filtration, Chlorination, Sludge digestion, Performance, Aerobic processes, Anaerobic processes, Flotation, Vacuum filtration, Elutriation, Thickening, Design, Incinerators, Centrifuging, Settling, Sanitary engineering, Computerized simulation, Cost engineering, Water pollution control.

Availability: NTIS, CP **T03**, 2416 cards*. Price includes documentation.

PB-238 823/9

Photochemical Air Quality Simulation Models.

Models-simulation. This tape contains the FORTRAN code and data for three photochemical air quality simulation models.

Software Description: The model is written in the Fortran programming language for implementation on a UNIVAC 1110 computer using the EXEC 8 operating system.

Related documentation: PB-220 243, PB-220 457, PB-234 978.

Keywords: *Models-simulation, Magnetic tapes, *Air pollution, Computerized simulation, Atmospheric models, *Photochemical reactions, Reaction kinetics, Atmospheric diffusion, Mathematical models, Computer programs, Urban areas, Atmospheric chemistry.

Availability: NTIS, CP **T03**, 1 reel mag tape. Specify tape recording mode desired: 9 track, Ebcdic; or 7 track, BCD. Price includes documentation.

PB-240 489/5

Landfill Control Municipal COBOL Computer Programs Module Technical Tape.

For complete citation, see 14 **Municipal Information Systems.**

PB-242 407/5

Reading USAC Project: Sewer and Water Accounts Processing Computer Program, Release Number One.

For complete citation, see 14 **Municipal Information Systems.**

PB-256 902/8

A Model for Calculating Effects of Liquid Waste Disposal in Deep Saline Aquifers.

Models-simulation. A transient, three-dimensional subsurface waste-disposal model has been developed to provide methodology to design and test waste-disposal systems. The model is a finite-difference solution to the pressure, energy, and mass-transport equations. Equation parameters such as viscosity and density are allowed to be functions of the equations' dependent variables. Multiple user options allow the choice of x, y, and z cartesian or r and z radial coordinates, various finite-difference methods, iterative and direct matrix solution techniques, restart options, and various provisions for output display. The addition of well-bore heat and pressure-loss calculations to the model makes available to the ground-water hydrologist the most recent advances from the oil and gas reservoir engineering field.

Software Description: The program is written in the FORTRAN programming language for implementation on an IBM 370/155 computer using the OS Version 21.8, HASP-MVT level operating system. 172K bytes of core storage are required to operate the model.

Related documentation: PB-256 903.

Keywords: *Models-simulation, Solid waste disposal, *Injection wells, *Water pollution, *Aquifers, Ground water, Pressure, Mass transfer, Design, Fluid flow, Convection, Finite element analysis, Salinity, Deep wells, Computerized simulation, Mathematical models, Magnetic tapes, FORTRAN, *Liquid waste disposal.

Availability: NTIS, CP **T06**, mag tape*. Source tape is in BCD character set. Tape(s) can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions. Price includes documentation.

PB-263 647/0

LARPP (Los Angeles Reactive Pollutant Program) Data Retrieval Program - IBM Version.

Software. The program is a flexible, input-driven algorithm. Users can specify arbitrary input/output formats for data retrieval; the code accepts such specifications as problem inputs. Users have options for tabulating data, copying data onto new files for further processing, generating printer plots, and performing mathematical operations on the data. The various options are selected using specific input commands. The program allows the use of multiple commands so that a specific option applies to individual user-specified datasets. Thus several retrieval operations can be performed simultaneously. Also, several different command options can be applied to a single dataset. For example, the same data may be both tabulated and plotted in a single retrieval operation.

Software Description: The code consists of a main program and ten subroutines. Two subroutines are written in IBM Assembly language; the main program and remaining subroutines in the Fortran programming language for implementation on an IBM 360/75 computer using the OS 21.8 version operating system. 180K bytes of core storage are required to operate the model.

Related documentation: PB-263 648.

Keywords: *Software, *Air pollution, Data retrieval, Magnetic tape, Smog, Meteorological data, Computer programs, Fortran, California, Larpp computer program, *Los Angeles(California), Air quality data, Replevy computer program, Computer program transferability.

Availability: NTIS, CP **T03**, mag tape. Source tape is in EBCDIC character set. Tape(s) can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions. Price includes documentation.

PB-271 105/9

CALINE-2 Computer Program.

Models-simulation. CALINE-2 is a Gaussian line source air pollution dispersion model for estimating concentrations of carbon monoxide downwind from roadways. The computational algorithms in the CALINE-2 model are extracted and assembled in a series of subroutines contained in a controlling subroutine called CAL 2. CAL 2 does not contain any provision for input/output other than as subroutine arguments. The following items are contained on a single file on this tape: (1) CALINE-2 Fortran source program; (2) sample input data (42 test problems); (3) subroutine CAL 2 Fortran source program. Details of the theory and development of CALINE-2 are contained in the report FHWA-RD-77-74, 'CALINE-2: An Improved Microscale Model for the Dispersion of Air Pollutants from a Line Source'. This report is available from NTIS: PB 275683/As.

Software Description: This model is written in the Fortran programming language for implementation on an IBM 360/65 computer using the OS/REL operating system. 40K bytes of core storage are required to operate this model.

Related documentation: PB-271 106.

Keywords: *Models-simulation, *Automobile exhaust, Computer programs, *Air pollution, *Carbon monoxide, Magnetic tapes, Fortran, Computerized simulation, Dispersing, Algorithms, Exhaust emissions, Mathematical models, Concentration(Composition), Caline 2 computer program, IBM 360/65 computers, *Gaussian Plume models.

Availability: NTIS, CP **T04**, mag tape. Source tape is in EBCDIC character set. Tape(s) can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions. Price includes documentation.

PB-275 700/3

Valley Model Computer Program.

Models-simulation. The Valley Model Computer Program is an analytical technique whose primary use is for estimating the upper limits of 24-hour average pollutant concentrations due to isolated sources in rural, complex terrain.

Software Description: The simulation model is written in the Fortran programming language for implementation on a UNIVAC 1110 computer using the

EXEC 8 operating system. 56K 36-bit words of core storage is required to operate the model.
Related documentation: PB-274 054/6.

Keywords: *Models-simulation, *Air pollution, Concentration(Composition), Plumes, Atmospheric diffusion, Magnetic tapes, *Gaussian plume models, VALLEY computer program, VALLEY model.

Availability: NTIS, CP **T03**, mag tape. Source tape is in EBCDIC character set. Tape(s) can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions. Price includes documentation.

PB-275 701/1

Single Source (CRSTER) Model Computer Programs.

Models-simulation. The Single Source (CRSTER) Model contains two computer programs designed to simulate atmospheric dispersion processes for the purpose of calculating ambient concentration levels of atmospheric contaminants. It is used primarily in simulating the behavior of stack effluents from combustion sources.
Software description: The model is written in the Fortran programming language for implementation on a UNIVAC 1110 computer using the EXEC 8 operating system. 40K 36-bit words of core storage is required to operate the model.
Related documentation: PB-271 360/0.

Keywords: *Models-simulation, *Air pollution, Computerized simulation, Magnetic tapes, Atmospheric motion, Concentration(Composition), CRSTER model, Gaussian plume models.

Availability: NTIS, CP **T03**, mag tape. Source tape is in EBCDIC character set. Tape(s) can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions. Price includes documentation.

PB-276 516/2

Climatological Dispersion Model QC (CDMQC) Computer Program.

Models-simulation. The Climatological Dispersion Model QC (CDMQC) is an expanded version of the CDM program. Both models are part of the UNAMAP system. The CDM program is a climatological dispersion model which determines long-term quasi-stable pollutant concentrations. The CDMQC model also provides a source contribution table, and implementation of calibration and of averaging time transformations.
Software Description: The model is written in the Fortran programming language for implementation on a UNIVAC 1110 computer using the EXEC 8 operating system. Computer memory requirement is 45K.
Related documentation: PB-227 346/4, PB-274 040/5.

Keywords: *Models-simulation, Atmospheric motion, *Air pollution, Climatology, Mathematical models, Magnetic tapes, CDM model, CDMQC computer program, Point sources.

Availability: NTIS, CP **T03**, mag tape. Source tape is in EBCDIC character set. Tapes can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired. Call NTIS Computer Products if you have questions. Price includes documentation.

PB-283 263/2

APRAC-2 Air Pollution Dispersion Model.

Models-simulation. The computer program for a completely revised version of the APRAC-1A diffusion model is presented and discussed. The new code uses EPA's emissions calculation methodology from Supplement No. 5 to AP-42. Gridded, and link by link emissions can be output for hydrocarbons, carbon monoxide or oxides of nitrogen. Diffusion calculations make use of a receptor-oriented Gaussian plume model. Local winds at the receptor can be used; they are interpolated from multiple wind inputs. Mixing heights may be calculated from sounding data, or input directly. Two local source models are available, one treating pollutant behavior in a street canyon, the other treats vehicle and pollutant effects at a signalized intersection. A small program is included for decoding Federal Highway Administration data tapes.
Software Description: The program is written in the Fortran programming language for implementation on a DATA 100/78 computer. 300K bytes of core storage are required to operate the model.
Related documentation: PB-275 459/6.

Keywords: *Models-simulation, *Air pollution, Computer programs, Atmospheric diffusion, Computerized simulation, Carbon monoxide, Emission, Magnetic tapes, Gaussian plume models, APRAC-2 computer program.

Availability: NTIS, CP **T03**, mag tape. Source tape is in EBCDIC character set. Tapes can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions. Price includes documentation.

PB-286 349/6

A Mathematical Model of Electrostatic Precipitation: Revision 1.

Models-simulation. The computer program performs the calculations in the mathematical model of electrostatic precipitation and is documented in other publications. The program predicts collection efficiency in an electrostatic precipitator as a function of particle diameter, electrical operating conditions, collection plate area, and gas properties. It calculates electric field distributions and voltage-current characteristics for wire-plate geometries. It determines particle as a function of particle diameter, electrical conditions, and residence time. It accounts for the nonideal effects of nonuniform gas velocity distribution, gas bypassage of electrified regions, and particle reentrainment by using empirically determined, particle-size-dependent correction factors to reduce the ideal collection efficiency for each particle diameter. The program can predict trends in overall mass collection efficiency caused by changes in specific collection area, applied voltage, current density, inlet mass loading, inlet particle size distribution, and nonideal conditions. The program contains an estimation

procedure which can be used in lieu of the rigorous procedure of calculation in order to obtain estimates without having to use large amounts of computer time.

Software Description: The program is written in the Fortran IV programming language for implementation on a DEC PDP 15/76 computer, using the DOS-15 V3B operating system. The program has also been implemented on an IBM 370/158, a CDC 7600, and a UNIVAC 1100 with minor changes. It requires 86,334 octal words of core, plus an additional 10,276 octal words of core for system software on the DEC PDP 15/76.

Related documentation: PB-284 614, PB-284 615.

Keywords: *Models-simulation, *Electrostatic precipitation, *Mathematical models, Particle size distribution, Computer programs, Revisions, Performance evaluation, Electric fields, Numerical analysis, Magnetic tapes, Fortran.

Availability: NTIS, CP **T04**, mag tape*. Source tape is in EBCDIC character set. Tapes can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions. Price includes documentation.

PB-287 768/6

Kinetics Model and Ozone Isopleth Plotting Package.

Software. The Kinetics Model and Ozone Isopleth Plotting Package (OZIPP) computer program can be used to simulate ozone formation in urban atmospheres. OZIPP calculates maximum one-hour average ozone concentrations given a set of input assumptions about initial precursor concentrations, light intensity, dilution, diurnal and spatial emission patterns, transported pollutant concentrations, and reactivity of the precursor mix. The results of multiple simulations are used to produce an ozone isopleth diagram tailored to particular cities. Such a diagram relates maximum ozone concentrations to concentrations of non-methane hydrocarbons and oxides of nitrogen, and can be used in the Empirical Kinetic Modeling Approach (EKMA) to calculate emission reductions necessary to achieve air quality standards for photochemical oxidants.

Software Description: This program is written in the Fortran programming language for implementation on a UNIVAC 1110 computer using the EXEC-8 operating system. 41K words of core storage are required to operate the model.

Related documentation: PB-286 248.

Keywords: *Software, *Air pollution, *Ozone, *Urban areas, Computerized simulation, Mathematical models, Reaction kinetics, Hydrocarbons, Nitrogen oxides, Computer programs, Atmospheric models, Atmospheric diffusion, Photochemical reactions, Concentration(Composition), Fortran, Magnetic tapes, OZIPP computer program.

Availability: NTIS, CP **T04**, mag tape. Source tape is in EBCDIC character set. Tapes can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions. Price includes documentation.

PB-292 893/5

CAASE - Computer Assisted Area Source Emissions Gridding Procedure.

Models-simulation. Atmospheric dispersion modeling programs such as the Climatological Dispersion Model (CDM), Air Quality Display Model (ACDM), and Implementation Planning Program (IPP) are among the most basic tools used for evaluation of air quality and State Implementation Plans (SIP's). Since emissions data comprise the most important input information for these models, any factor affecting the availability and completeness of the emissions data has a significant impact on the results of the modeling programs. Procedures for formatting emissions from point sources are well defined; however, area source emission data present problems. Usually the smallest geographic unit for which accurate primary data are available is the county. These data must be disaggregated and appropriately allocated to smaller areas to provide an adequately detailed input. The Computer Assisted Area Source Emissions (CAASE) gridding programs with associated subroutines containing automated gridding procedures provide an objective method for allocating county-level data to grid squares selected on the basis of demographic features and sized to give appropriate detail for input to air quality modeling programs. The first 5 files on this tape are the source code (Fortran) for the 5 programs, CAASE 1 through CAASE 5, that comprise the Computer Assisted Area Source Emissions Gridding Procedure. These files are written in card image format and coded in EBCDIC. File 6 contains data required when coordinate transformations from one UTM zone to another is necessary. File 7 containing U.S. county boundary coordinates is required input to the CAASE 2 program. Files 6 and 7 are coded in EBCDIC.

Software Description: The program is written in the Fortran programming language for implementation on an IBM 370 computer using the OS operating system.

Related documentation: PB-286 285/2.

Keywords: *Models-simulation, *Air pollution, Mathematical models, Fortran, State government, Sources, Grids(Coordinates), Exhaust emissions, Combustion products, Management planning, Magnetic tapes, Air quality, Air quality maintenance, Emission factors, State Implementation Plans, Point sources, Area sources, CAASE computer programs, Computer assisted area source emissions, Air quality control regions, Air quality maintenance areas.

Availability: NTIS, CP **T06**, mag tape. Source tape is in EBCDIC character set. Character set restricts preparation to 9 track one-half inch tape only. Identify recording mode by specifying density only. Call NTIS Computer Products if you have questions. Price includes documentation.

PB-294 444/5

Needs Survey (1978): Continuous Stormwater Pollution Simulation Systems.

Models-simulation. A simplified continuous rainfall/runoff/receiving water quality response simulation model is presented. The purpose of this model is to simulate all major urban pollution sources in a simple yet rational number. Application of the model pro-

vides long-term simulation of the total urban system at moderate cost. Processes simulated include rainfall, direct runoff, watershed pollution accumulation and washoff, sewer system infiltration, storage/treatment systems for wet-weather flow, dry-weather WWTP effluent, upstream flow, and receiving water quality response to the combined effects of all the above pollution sources. Pollutants considered are biochemical oxygen demand (BOD), total kjeldahl nitrogen (TKN), suspended solids (SS), and lead (Pb). Receiving water responses simulated included suspended solids concentrations, minimum dissolved oxygen concentrations, and total and dissolved lead concentrations. The simulation provides a planning tool which may be used to evaluate the long-term water quality impacts of various water quality management alternatives including control of combined sewer overflow and/or urban stormwater runoff.
Software Description: The system is written in Fortran G for implementation on a IBM 3032 and 370-168 MVT operating system. 300k bytes of storage are required to run the system.
Related documentation: PB-294 445.

Keywords: *Models-simulation, *Runoff, *Water pollution, *Rainfall, Water quality, Urban areas, Mathematical models, Computer programs, Fortran, Biochemical oxygen demand, Nitrogen, Suspended sediments, Lead(Metal), Magnetic tapes, CSPSS computer program, Total Kjeldahl nitrogen, Urban hydrology, Storm water runoff.

Availability: NTIS, CP **T05**, mag tape*. Source tape is in EBCDIC character set. Tapes can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions. Price includes documentation.

PB-294 807/3

The Sandia Waste Isolation Flow and Transport (SWIFT) Model.

For complete citation, see 15 **Natural Resources and Hydrology.**

PB80-109176

The ELSTAR Photochemical Air Quality Simulation Model.

Models-simulation. This tape contains the ELSTAR photochemical air quality simulation model Fortran source code and a sample problem data set for Los Angeles, California (1973). The ELSTAR model consists of a series of computer programs used to predict atmospheric concentrations of photochemical pollutants such as ozone, nitrogen dioxide and sulfate in urban regions. The model includes the effects of meteorological transport, turbulent eddy diffusion, source emissions and chemical kinetic reactions.
Software Description: The program is written in the Fortran programming language for implementation on a Data General NOVA 3 using the 6021 operating system. 230 K bytes of core storage are required to operate the system.
Related documentation: PB80-109184.

Keywords: *Models-simulation, *Air pollution, Atmospheric diffusion, Ozone, Nitrogen dioxide, Sulfates, Urban areas, Metropolitan areas, Turbulence, Chemical reactions, Concentration(Composition), Computer programs, Fortran, Magnetic tapes, *Atmospheric dispersion, ELSTAR system, Los Angeles(California).

Availability: NTIS, CP **T04**, mag tape. Source tape is in ASCII character set. Character set restricts preparation to 9 track one-half inch tape only. Identify recording mode by specifying density only. Call NTIS Computer Products if you have questions. Price includes documentation.

PB80-122534

U.S. Geological Survey Waste Injection Program (SWIP 2).

Models-simulation. This program models liquid waste disposal in deep saline aquifiers. It solves by finite difference techniques the partial differential equations describing single phase fluid flow, energy transport by convection and conduction, and contaminant transport by convection and dispersion. This program is a modification of an earlier program; these modifications include free water surface, vertical recharge, equilibrium controlled linear adsorption, and a first order irreversible rate reaction. These, plus additional modifications, make this model more adaptable to general hydrologic problems and those involving waste disposal with simple chemical reactions.
Software Description: The program is written in the Fortran programming language for implementation on an IBM 370/155 computer using the HASP operating system.
Related documentation: PB80-122542.

Keywords: *Models-simulation, *Aquifiers, Ground water, Underground storage, Waste disposal, Wells, Magnetic tapes, *Liquid waste disposal, SWIP 2 computer program, Salt deposits.

Availability: NTIS, CP **T08**, mag tape*. Source tape is in EBCDIC character set. Tapes can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired. Call NTIS Computer Products if you have questions. Price includes documentation.

PB80-133036

Industrial Source Complex (ISC) Dispersion Model.

Software. The model updates various EPA dispersion model algorithms and combines them in two computer programs that can be used to assess the air quality impact of emissions from the wide variety of source types associated with an industrial source complex. The ISC Model short-term program ISCST, an updated version of the EPA Single Source (CRSTER) Model uses sequential hourly meteorological data to calculate values of average concentration or total dry deposition for time periods of 1, 2, 3, 4, 6, 8, 12 and 24 hours. Additionally, ISCST may be used to calculate 'N' is 366 days. The ISC Model long-term computer program ISCLT, a sector-averaged model that updates and combines basic features of the EPA Air Quality Display Model (AQDM) and the EPA Climatological Dispersion Model (CDM), uses STAR Summaries to calculate seasonal and/or annual average concentration or total deposition values. Both the ISCST and ISCLT programs make

the same basic dispersion-model assumptions. Additionally, both the ISCST and ISCLT programs use either a polar or a Cartesian receptor grid.
Software Description: The programs are written in the FORTRAN IV programming language for implementation on a UNIVAC 1110 computer and also on medium-to-large IBM or CDC systems. 65,000k words of core storage are required to operate the model.
Related documentation: PB80-133051, PB80-133044.

Keywords: *Software, *Air pollution, Atmospheric diffusion, Fortran, Magnetic tapes, *Atmospheric dispersion, ISC model, ISCST computer program, ISCLT computer program, Univac-1110 computers, IBM computers, CDC computers, Fortran 4 programming language.

Availability: NTIS, CP **T06**, mag tape*. Source tape is in EBCDIC character set. Tapes can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density and parity. Call NTIS Computer Products if you have questions. Price includes documentation.

PB80-150204

Carbon Monoxide Hot Spot Guidelines Mobile Model.

Software. A modified version of the ISMAP model has been developed for the analysis of carbon monoxide hot spot locations. The original version of ISMAP (Indirect Source Model for Air Pollution) was developed by Stanford Research Institute to be used in the evaluation of indirect source impact upon ambient carbon monoxide concentrations. Due to the size and complexity of the original version of the model, the modifications were made without changing the basic structure of the program. Since the analysis of parking lot traffic and emissions was an integral part of the original model structure, it was left in the modified version, but the code was modified to negate their effect upon traffic flow and air quality. In the modified ISMAP, internal zones traffic network. This modified version of the model sets parking lot emissions equal to zero and provides a near infinite parking lot capacity so that vehicle routing between internal zones will not occur because of parking lot overcrowding. Other modifications made to ISMAP include the incorporation of a street canyon submodel. Version 2 of modified ISMAP utilized the most recent (1978) motor vehicle emission correction factors and modal analysis model coefficients and deterioration. In other aspects, it is unchanged from Version 1.
Software Description: The model is written in the Fortran programming language for implementation on a UNIVAC 1110 computer using the EXEC 8 operating system. The computer memory requirement is 96K.
Related documentation: PB80-150220, PB80-150238, PB80-150212.

Keywords: *Software, *Air pollution, *Carbon monoxide, Exhaust emissions, Concentration(Composition), Revisions, Fortran, *Air quality, ISMAP models.

Availability: NTIS, CP **T06**, mag tape. Source tape is in EBCDIC character set. Tapes can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired. Call NTIS Computer Products if you have questions. Price includes documentation.

PB80-168156

MPTER (Multiple Point Algorithm with Terrain Adjustment).

Models-simulation. Tape MPTER contains (1) an air quality simulation model, MPTER, and seven example runstreams for the model; (2) two postprocessor programs useful for determining highest and second highest concentrations for air quality simulation model output: TPHI5 for end-to-end averages and TPRN25 for running averages; (3) formatted meteorological data useful for CRSTER, RAMF, and MPTER example runs; (4) a program (UNFORMET) to convert the above meteorological data into unformatted form for entry to the stated models; and (5) a program PTPLU, an improvement of PTMAX, which determines maximum concentrations and distance to maximum concentration for a variety of wind speed and stability conditions. Calculations are made both for wind speed constant with height and wind speed increasing with height. MPTER is useful for estimating relatively non-reactive pollutant concentrations hour-by-hour using the Gaussian steady-state model. The model is most applicable for source-receptor distances less than 10 km in level or gently rolling terrain. Available options include terrain adjustment, gradual plume rise, stack downwash, and buoyancy-induced dispersion.
Software Description: The system is written in the Fortran programming language for implementation on a UNIVAC 1100 computer using the Time/Sharing EXEC Ver 133. R1A.*139 operating system. The computer memory requirement is 44K for MPTER, 3K for UNFORMET.
Related documentation: PB80-197361.

Keywords: *Models-simulation, *Air pollution, Plumes, Wind velocity, Concentration(Composition), Terrain, Magnetic tapes, *Atmospheric dispersion, MPTER model, TPHI5 computer program, TPRN25 computer program, UNFORMET computer program, PTPLU computer program, Gaussian plume models.

Availability: NTIS, CP **T06**, mag tape. Source tape is in ASCII character set. Character set restricts preparation to 9 track, one-half inch tape only. Identify recording mode by specifying density only. Call NTIS Computer Products, if you have questions. Price includes documentation.

PB80-170160

MULTIMAX: An Air Dispersion Modeling Program for Multiple Sources, Receptors, and Concentrations.

Models-simulation. MULTIMAX is an air dispersion modeling program developed for the estimation of 1-, 3-, 24-hour and annual pollutant concentration averages from the multiple stock sources for multiple receptors. The modeling basis is the Gaussian plume model with Briggs plume rise formulas applied to each of all possible source-receptor pairs for meteorological conditions assumed constant for one hour. Computing options include adjustment of the wind speed for stack height, adjustment of the concentra-

tions from the ten minute sampling basis to one hour, adjusting the results by means of a linear calibration equation and several methods for estimating the effects of elevated terrain. Primary program output consists of the following types of maximum concentration averages for each receptor; annual, highest 3-hour, second highest 3-hour, highest 24-hour, second highest 24-hour, and hourly. Two implementations of the model are available; one for IBM computers and the other for Univac 1100-series computers. The documentation describes the machine-dependent features of the codes.

Software Description: The system is written in the FORTRAN programming language for implementation on an IBM 370/168 computer using the OS/VS2 Rel 03.70 operating system or on a UNIVAC 1110 computer using the Time/Sharing EXEC Ver 133. R1A.*139 operating system. The core requirement is 300K.

Related documentation: PB80-170178.

Keywords: *Models-simulation, *Air pollution, Plumes, Concentration(Composition), Calibrating, Terrain, Magnetic tapes, *Atmospheric dispersion, MULTIMAX computer program, Gaussian plume models.

Availability: NTIS, CP **T04**, mag tape. Source tape is available in the EBCDIC and FIELDATA character sets. Tapes can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired. Call NTIS Computer Products if you have questions. Price includes documentation.

PB80-220833

CALINE3 - A Versatile Dispersion Model for Predicting Air Pollutant Levels Near Highways and Arterial Streets.

Models-simulation. CALINE3 is a third generation line source air quality model developed by the California Department of Transportation. It is based on the Gaussian diffusion equation and employs a mixing zone concept to characterize pollutant dispersion over the roadway. The purpose of the model is to assess air quality impacts near transportation facilities in what is known as the microscale region. Given source strength, meteorology, site geometry, and site characteristics, the model can reliably predict carbon monoxide concentrations for receptors located within 150 meters of the roadway. The model has adjustments for averaging time and surface roughness, and can handle up to 20 links and 20 receptors. It also contains an algorithm for deposition and settling velocity so that particulate concentrations can be predicted.

Software Description: The program is written in the FORTRAN programming language for implementation on a AMDAHL 470 model V/7 w/12 Meg. IBM 370/168 w/attached processor computer using the MVS-JES3 OS/VS-2 operating system. 40K bytes of cores storage are required to operate the model.

Related documentation: PB80-220841.

Keywords: *Models-simulation, *Air pollution, Computerized simulation, Highways, Dispersing, Fortran, Assessments, Magnetic tapes, Punched cards, Carbon monoxide, Arterial streets, Air quality, CALINE3 computer program.

Availability: NTIS, CP **T03**, mag tape*. Source tape is in EBCDIC character set. Tapes can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions. Price includes documentation.

PB81-104168

EXEC/OP FORTRAN Source Code.

Software. EXEC/OP is a Fortran computer program that performs preliminary design synthesis of municipal wastewater treatment and sludge disposal systems. It selects the components in the wastewater treatment and sludge disposal trains from a list of candidate process units with fixed design characteristics so that criteria on effluent quality, cost, energy, land utilization, and subjective undesirability are best satisfied. The computational procedure uses implicit enumeration coupled with a heuristic penalty method that accounts for the impact of return sidestream from sludge processing. The program can consider eight different types of wastewater treatment processes and thirteen different types of sludge treatment processes.

Software Description: This computer magnetic tape file contains the Fortran source code for Version 1.2 of the EXEC/OP program.

Related documentation: PB81-104176.

Keywords: *Software, *Sewage treatment, *Sludge disposal, Design criteria, Systems analysis, Land use, Cost analysis, Optimization, Energy, Fortran 4 programming language, PDD-11/70 computers.

Availability: NTIS, CP **T05**, mag tape*. Source tape is in EBCDIC character set. Tapes can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions. Price includes documentation.

PB81-114381

The ELSTAR Stationary Source Emissions Data Preprocessor.

Software. This tape contains computer programs designed to preprocess stationary point source emissions data for the ELSTAR photochemical air quality simulation model. The ELSTAR model requires hydrocarbon, oxides of nitrogen, carbon monoxide and oxides of sulfur emissions data for stationary point sources. The program converts emissions data compiled in the U.S. EPA's Emissions Inventory Subsystem (EIS) format to the format required by the ELSTAR model. The conversion process includes assignment of source data to source categories, assignment of diurnal operating characteristics, assignment of hydrocarbon emission composition profiles (in six classes) and conversion of source locations to emissions grid square indices. Major point sources are inventoried separately from minor point sources in processing.

Software Description: The program is written in the Fortran programming language for implementation on a CDC 6400 computer using the Goleta 1.0 operating system. 40K bytes of core storage are required to operate the model.

Related documentation: PB80-184575.

Keywords: *Software, *Air pollution, Hydrocarbons, Nitrogen oxides, Carbon monoxide, Sulfur oxides, Fortran, Sources, Air quality, CDC-6 computers, Stationary sources.

Availability: NTIS, CP **T05**, 1p. Source tape is in EBCDIC character set. Tapes can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions. Price includes documentation.

PB81-164600

UNAMAP (Version 4), User's Network for Applied Modeling of Air Pollution.

Models-simulation. The User's Network for Applied Modeling of Air Pollution UNAMAP (Version 4) contains 21 air quality simulation models (AQSM). These models input emission and meteorological data to calculate projected air pollutant concentrations. UNAMAP contains state-of-the-art dispersion research algorithms supported by U.S. Environmental Protection Agency's (EPA) Office of Research and Development. The UNAMAP (Version 4) contains ten (10) new models. In addition, most of the original UNAMAP models have undergone extensive revision. The models are: COMPLEX II - is a multiple point source code with terrain adjustment. COMPLEX I - is a multiple point source code with terrain adjustment representing a sequential modeling bridge between VALLEY and COMPLEX II. BLP (Buoyant Line and Point Source Dispersion Model) - is a gaussian plume dispersion model associated with aluminum reduction plants. RAM - Short-term gaussian steady-state algorithm estimates concentrations of stable pollutants. CRSTER - estimates ground-level concentrations resulting from up to 19 collocated elevated stack emissions. CDM - this climatological dispersion model determines long-term quasi-stable pollutant concentrations. CDMQC - CDM altered to provide implementation of calibration and of averaging time transformations. APRAC - computes hourly averages of carbon monoxide for any urban location. HIWAY - computes the hourly concentrations of non-reactive pollutants downwind of roadways. VALLEY - is a steady-state, univariate gaussian plume dispersion algorithm. TEM (Texas Episodic Model) - is a short term, steady-state gaussian plume model for determining short-term concentrations of non-reactive pollutants. TCM (Texas Climatological Model) is a climatological, steady-state gaussian plume model for determining long-term average pollutant concentrations of non-reactive poliutants. PAL (Point, Area, Line Source Algorithm) - this short-term gaussian steady-state algorithm estimates concentrations of stable pollutantsfrom point, area, and line sources. PTPLU - is a point source dispersion gaussian screening model for estimating maximum surface concentrations for one-hour concentrations. MPTER - is a multiple point-source gaussian model with optional terrain adjustments. HIWAY2 - update of HIWAY. ISCST (Industrial Source Complex Short-Term) is a steady-state gaussian plume model which can be used to access pollutant concentrations from an industrial source complex. ISCLT (Industrial Source Complex Long-Term) - is a steady-state gaussian plume model which can be used to access pollutant concentrations from an industrial source complex. PTMAX - performs an analysis of the maximum short-term concentrations from a single point source as a function of stability and wind speed. PTDIS - Estimates short-term concentrations directly downwind of a point source at distances specified by the user. PTMTP - estimates for a number of arbitrarily located receptor points at or above ground level, the concentrations from a number of point sources.

Software Description: The system is written in the FORTRAN programming language for implementation on a UNIVAC 1100/82 computer using the 36R2B operating system. 69K 6-character words are required to operate the lest model of the system.

Related documentation: PB81-164618, PB81-164626, PB81-164634, PB81-164642, PB81-164659, PB81-164667, PB-213 091, PB-239 944, PB-271 360, PB-274 054, PB-227 346, PB-281 306, PB-294 791, PB-294 792, PB80-227572, PB80-227556, PB80-133051, PB80-133044.

Keywords: *Models-simulation, *Air pollution, Mathematical models, *Atmospheric diffusion, Fortran, Magnetic tapes, UNAMAP models, UNIVAC-1100 computers, UNIVAC-1100/82 computers, Air quality, Complex 2 model, Complex 1 model, Buoyant Line and Point Source Dispersion model, RAM model, CRSTER model, CDM model, CDMQC model, APRAC model, HIWAY model, VALLEY model, Texas Episodic Model, Point Area Line Source model, PTPLU model, MPTER model, Industrial Source Complex models, PTMAX model, PTDIS model, PTMTP model, Texas Climatological Model.

Availability: NTIS, CP **T13**, mag tape. Source tape is in ASCII character set. Restricted to 9 track 1/2 inch tape. Identify mode by specifying density only. Price includes documentation.

PB81-179236

Mesoscale Air Quality Simulation Models.

Models-simulation. ;Contents: File 1 Description of contents of tape; File 2 MESOPAC, a meteorological preprocessor program for the MESOSCALE series of air pollution models; File 3 MESOPUFF, a variable-trajectory regional-scale atmospheric dispersion model based on the Gaussian Puff equation; File 4 MESOPLUME, a variable-trajectory regional-scale atmospheric dispersion model based on the Gaussian Plume equation; File 5 MESOFILE, a postprocessing system designed for file management, file merging, file manipulations, statistical analyses, and graphical display; and File 6 Output of MESOPAC, MESOPUFF and MESOPLUME in 132 character format.

Software Description: The system is written in the FORTRAN and Assembly programming languages for implementation on a UNIVAC 1100 computer using the 33R operating system.

Related documentation: PB80-227580, PB80-227598, PB80-227796, PB80-227804, PB80-227812, PB80-228042.

Keywords: *Models-simulation, *Air pollution, Atmospheric diffusion, Atmospheric models, Dispersions, Air quality.

Availability: NTIS, CP **T11**, mag tape. Source tape is in ASCII character set. Character set restricts preparation to 9 track one-half inch tape only. Call NTIS Computer Products, if you have questions. Price includes documentation.

PB81-223067

MOBILE2: Computer Tape Containing Program to Simulate Mobile Source Emissions, Generating Emission Factors for Three Pollutants.

Models-simulation. MOBILE2 is an integrated set of FORTRAN routines for use in the analysis of the air pollution impact of highway mobile sources. MOBILE2 can be utilized in a wide variety of air pollution planning functions. MOBILE2 is an update of its predecessor MOBILE1. MOBILE2 calculates emission factors for three emissions (HC, CO, and NOx) and eight vehicle types in three regions of the country. Further, MOBILE2 calculates emission estimates for various ambient, usage, and locality dependent conditions such as temperature, speed, mileage accumulation distributions, vehicle miles travelled distributions, etc.
Software Description: The system is written in the FORTRAN programming language for implementation on an AMDAHL 470/V8 computer using the MTS operating system. 201K bytes of core storage are required to operate the system.
Related documentation: PB81-205619.

Keywords: *Models-simulation, *Air pollution, *Exhaust emissions, Computer programming, Fortran, Hydrocarbons, Carbon monoxide, Nitrogen oxides, Magnetic tapes, H=Amdahl-470/V8, L=Fortran 5, *MOBILE 2 system, Emission factors.

Availability: NTIS, CP **T06**, mag tape*. Source tape is in EBCDIC character set. Tapes can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions. Price includes documentation.

10. GOVERNMENT ADMINISTRATION AND SERVICES

COM-74-10701/2

City Games - CITY I, ATLANTA I

Software. CITY I is an operational simulation game in which participants make economic and government decisions affecting a hypothetical metropolitan area. The game is run on an IBM 1131 central processor with at least 8K core and single disk storage with a 1403 line. This file contains the CITY I system along with a sample city named Atlanta I. This disk, along with a player's, director's and computer operator's manual, is required to play a game.
Related documentation: COM-74-10701-01, COM-74-10701-02, COM-73-11191/6, COM-74-10704/6, COM-74-10703-1, COM-74-10703-2.

Keywords: *Software, *Urban planning, *Decision making, *Management games, *City games.

Availability: NTIS, CP **T06**, 1 IBM 1130 disk. Available only as IBM 1130 Disk Cartridge Drive, Model 2310. Price includes documentation.

COM-74-10702/0

City Games - CITY IV.

Software. CITY IV is an operational simulation game in which participants make economic, government and social decisions affecting a hypothetical metropolitan area. Through the use of a computer, the simulated urban system responds to the participant's as any real city would. The tapes and cards from this file along with a player's, director's and computer operator's manual are required for a game play.
Software Description: The software is written in FORTRAN for implementation on an IBM 360 series computer under OS.
Related documentation: COM-74-10702-01, COM-74-10702-02, COM-74-10702-03, COM-74-10703-1, COM-74-10703-2, COM-74-10704/6.

Keywords: *Software, City planning, *Decision making, *Management games, Computerized simulation, Economic management, Government policies, Social planning, Magnetic tapes, *Urban planning, CITY 4 system, Metropolitan areas, *City games.

Availability: NTIS, CP **T06**, 1 reel mag tape. Price includes documentation.

COM-74-11496/8

City Game III.

Models-simulation. City III is an operational simulation game in which participants make economic, government, and social decisions affecting a hypothetical metropolitan area. Through the use of a computer, the simulated urban system responds to the participants's as any real city would. The tapes and cards from this file along with a player's and director's manual is required for a game play. Three example cities i.e. Big city, Dunbeath, and Tricity are supplied for user use.
Software Description: The game is operated on a Univac 1108 computer with the Exec 8 operating system and high speed printers.
Related documentation: COM-74-10704/6, COM-73-10216/2, COM-73-10217/0, COM-74-10703-1.

Keywords: *Models-simulation, *Software, Computerized simulation, *Urban planning, *Management games, *Decision making, Simulation games, *City games.

Availability: NTIS, CP **T06**, mag tape. Price includes documentation.

PB-208 753/4

Air Quality Implementation Planning Program (IPP) Computer Program Tape.

For complete citation, see 9 **Environmental Pollution and Control.**

PB-240 383/0

Fire Operations Municipal COBOL Computer Programs Module Technical Tape.

For complete citation, see 14 **Municipal Information Systems.**

PB-242 762/3

Personnel Operations Module Design Specification Municipal Cobol Computer Programs Module Technical Tape.

For complete citation, see 14 **Municipal Information Systems.**

PB-243 298/7

Equipment Management Municipal Cobol Computer Programs Module Technical Tape.

For complete citation, see 14 **Municipal Information Systems.**

PB-251 634/2

Wilderness Area User's Simulation Model (WAUSM), 1975.

Models-simulation. The Wilderness Traffic Simulator is a computer model designed to simulate recreational traffic flow within travel systems. It was designed to provide the capability of measuring the impact of use and management policies on the characteristics of the simulated wilderness experience.
Software Description: The model is written in Fortran for implementation on an IBM 360 series computer under OS.
Related documentation: PB-251 635.

Keywords: *Models-Simulation, *Recreation, *Rural areas, *Travel, *Computer programs, Magnetic tapes, Transportation models, Traffic, Management methods, Utilization, Natural resources, Simulation, *Wilderness areas, Recreational travel, Traffic flow, Simulation models.

Availability: NTIS, CP **T03**, 1 reel mag tape. Source tape is in EBCDIC character set. Tape can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions. Price includes documentation.

PB-252 630/9

Violation Information Processing System (VIP) - Municipal COBOL Computer Programs Module Magnetic Tape. Release No. 1.

For complete citation, see 14 **Municipal Information Systems.**

PB-259 306/9

Fire Station Location Package.

Models-simulation. Using the PTI Fire Station Package, local administrators and fire officials evaluate adequacy of station locations - present and planned - on response time rather than arbitrary distance requirements to get the most protection for the least investment. A tool for determining policies and making strategic decisions, the effectiveness depends upon interest and participation of top management. Utilizing a project team of fire officials, support staffs, and representatives of management, the process provides a focal point for fire officials and administrators to reach agreement on the level of service which is to be provided. Package aids decisions on least expensive alignment of stations necessary to meet fire protection requirements. It allows a municipality to develop a configuration of stations which recognizes 'response time' as an important ingredient in saving lives and reducing fire damages. The alignment of stations may be less, more, or the same number of stations as a locality has now. Whatever the answer, it will be based on an objective appraisal of local needs. The Package was developed with local administrators and fire officials across the country. Many communities have used results as the basis for decisions following public hearings. Most realized substantial savings in annual operating costs.
Software Description: The PATH part of the program is written in the FORTRAN programming language and the LOCATION part in COBOL for implementation of an IBM 360/65 computer using the OS operating system. The computer memory requirement is 50K.
Related documentation: PB-239 901, PB-239 902, PB-239 903, PB-239 904, PB-259 307.

Keywords: *Models-simulation, *Fire departments, *Sites, *Management planning, Computer programming, Magnetic tapes, Stations, Local government, Optimization, Travel time, Fire fighting, Decision making, Policies, Cost effectiveness, Community relations, Facilities, Services, Fire station location package, Fire stations.

Availability: NTIS, CP **T05**, mag tape. Source tape is in EBCDIC character set. Tape(s) can be prepared in most standard 7 or 9 track recording modes for one-half tape. Specify recording mode desired. Call NTIS Computer Products if you have questions. Price includes documentation.

PB-259 880/3

Emergency Service Deployment Models and Demonstration Data Bases.

Software. Contents: (A) Patrol Car Allocation Model; (B) Hypercube Queuing Model; (C) Firehouse Site Evaluation Model; (D) Parametric Allocation Model; (E) Program for Determining the Travel Characteristics of Emergency Service Vehicles; (F) Simulation Model of Fire Department Operations; (G) Simulation Model of Police Patrol Operations.
Software Description: The programs are written in the FORTRAN, BASIC, PL/1, SIMSCRIPT I.5, and SMSCRIPT II.5 programming languages for implementation on an IBM 370/158 computer using the OS operating system.
Related documentation: PB-250 467, PB-250 468, PB-250 469, PB-250 440, PB-250 441, PB-250 439, PB-250 437, PB-250 438, PB-250 443, PB-250 444, PB-250 460, PB-242 401, PB-242 400, PB-246 147, PB-241 483.

Keywords: *Software, *Urban planning, Magnetic tapes, Operations research, Allocation models, Mathematical models, Management methods, Systems analysis, Police, Medical services, Emergency vehicles, Distribution(Property), Fire departments, Fire fighting, Computerized simulation, *Emergency services.

Availability: NTIS, CP **T14**, mag tape*. Source tape is in EBCDIC character set. Character set restricts preparation to 9 track one-half inch tape only. Identify recording mode by specifying density only. Call NTIS Computer Products, if you have questions. Price includes documentation.

PB-259 881/1

Patrol Car Allocation Model (PCAM). Release 13.

Software. Computer program is used to determine the number of police patrol cars to have on duty different times of day in different geographical commands. Program operates in batch mode or (by changing seven lines of the program) in interactive

mode. Program is written in the FORTRAN programming language with two extensions to ANSI standards: generalized subscripts and quoted literals.
Software Description: The program is written in the FORTRAN programming language for implementation on an IBM 370/158 computer using the OS operating system. The computer memory requirement is 160K.
Related documentation: PB-250 467, PB-250 468, PB-250 469.

Keywords: *Software, *Urban planning, *Police, Magnetic tape, Motor vehicles, Scheduling, *Law enforcement, Performance standards, Cost analysis, Manpower, Allocation models, Municipalities, Systems engineering, Travel time, Optimization, Police patrols.

Availability: NTIS, CP **T05**, mag tape*. Source tape is in EBCDIC character set. Character set restricts preparation to 9 track one-half inch tape only. Identify recording mode by specifying density only. Call NTIS Computer Products, if you have questions. Price includes documentation.

PB-259 882/9

Hypercube Queuing Model. Release 1.0.

Software. Computer program is used for design of patrol beats for police patrol cars or for selection of fixed locations for mobile vehicles such as emergency medical service units or fire engines. Program operates in batch mode.
Software Description: Program is written in the PL/1 programming language for implementation on an IBM 370/158 computer using the OS operating system. Minimum core requirement varies according to tables used in program.
Related documentation: PB-250 439, PB-250 440, PB-250 441.

Keywords: *Software, *Urban planning, Services, *Police, Fire fighting, Ambulances, Urban areas, Mathematical models, Allocation models, Systems analysis, Distribution(Property), *Hypercube model, Emergency services.

Availability: NTIS, CP **T04**, mag tape*. Source tape is in EBCDIC character set. Character set restricts preparation to 9 track one-half inch tape only. Identify recording mode by specifying density only. Call NTIS Computer Products, if you have questions. Price includes documentation.

PB-259 883/7

Firehouse Site Evaluation Model. Release 3.

Software. Program is used to select locations for stations. Program operates in interactive mode or (by changing three lines) in batch mode. Technical documentation includes: PB-250 437 Executive Summary; PB-250 438 Description and User's Manual.
Software Description: Programs are written in the FORTRAN programming language. A minimum of 154K bytes of core storage are required in order to use the program.
Related documentation: PB-250 437, PB-250 438.

Keywords: *Software, *Urban planning, *Fire departments, Sites, Deployment, Magnetic tape, Mathematical models, Allocation models, Fire protection, Optimization, Travel time, Reaction time, Municipalities, Site surveys, FORTRAN.

Availability: NTIS, CP **T06**, mag tape*. Source tape is in EBCDIC character set. Character set restricts preparation to 9 track one-half inch tape only. Identify recording mode by specifying density only. Call NTIS Computer Products, if you have questions. Price includes documentation.

PB-259 884/5

Parametric Allocation Model. Release 1.0.

Software. Program is used to determine the number of fire companies and/or emergency medical units to locate in each subregion of an agency's geographical jurisdiction. Three files are provided, only two of which are needed by any one user. The first is an interactive program in the programming language Extended Basic. The second is a PL/1 batch version of the same program. The third is a sample data base for either program.
Software Description: Minimum core requirement varies according to tables used in program.
Related documentation: PB-250 443, PB-250 444.

Keywords: *Software, *Urban planning, *Fire departments, *Medical services, Magnetic tape, Allocation models, Municipalities, Systems engineering, Fire fighting, Distribution(Property), Mathematical models, BASIC programming language, PL/1 programming language.

Availability: NTIS, CP **T06**, mag tape*. Source tape is in EBCDIC character set. Character set restricts preparation to 9 track one-half inch tape only. Identify recording mode by specifying density only. Call NTIS Computer Products, if you have questions. Price includes documentation.

PB-259 885/2

Program for Determining the Travel Characteristics of Emergency Service Vehicles. Release 1.0.

Software. Program fits a smooth curve to data showing the travel time and travel distance for each of many responses by emergency service vehicles. Two files are provided: the FORTRAN source as listed in the documentation, and a demonstration data base.
Software Description: Program is written in the FORTRAN programming language. A minimum of 150K bytes of core are required in order to use the program.
Related documentation: PB-250 460.

Keywords: *Software, *Urban planning, *Emergency vehicles, Fire departments, Police, Travel time, Reaction time, Distance, Municipalities, Scheduling, Local government, Operations research, Allocation models, Mathematical models, Deployment, FORTRAN, Time of day.

Availability: NTIS, CP **T05**, mag tape*. Source tape is in EBCDIC character set. Character set restricts preparation to 9 track one-half inch tape only. Identify recording mode by specifying density only. Call NTIS Computer Products, if you have questions. Price includes documentation.

PB-259 886/0

Simulation Model of Fire Department Operations. Release 1.0.

Models-simulation. The model can be used to analyze the locations of fire companies, dispatching policies, relocation (or move-up) policies, and other characteristics of fire department operations.
Software Description: Program is written in the SIMSCRIPT I.5 programming language for implemen-

tation on an IBM 370/158 computer using the OS operating system. A minimum of 228K bytes of core are required in order to use the program.

Related documentation: PB-242 400, PB-242 401.

Keywords: *Models-simulation, *Urban planning, *Fire departments, Magnetic tape, Fire fighting, Deployment, Municipalities, Allocation models, Mathematical models, Operations research, Systems analysis, Emergency vehicles.

Availability: NTIS, CP **T04**, mag tape*. Source tape is in EBCDIC character set. Character set restricts preparation to 9 track one-half inch tape only. Identify recording mode by specifying density only. Call NTIS Computer Products, if you have questions. Price includes documentation.

PB-259 887/8

Simulation Model of Police Patrol Operations. Release 1.0.

Models-simulation. Model can be used to analyze locations, patrol beats, dispatching practices, tour starting times, usefulness of car locator systems, and other aspects of police patrol car operations. User should write to the Technical Representative (Box 13) for the latest update information on this program.

Software Description: Program is written in the SIMSCRIPT II.5 programming language. Minimum core requirement for use of program is 164K.

Related documentation: PB-241 483, PB-246 147.

Keywords: *Models-simulation, *Urban planning, *Police, Magnetic tape, Operations research, Allocation models, Mathematical models, Emergency vehicles, Scheduling, Reaction time, Systems analysis.

Availability: NTIS, CP **T04**, mag tape*. Source tape is in EBCDIC character set. Character set restricts preparation to 9 track one-half inch tape only. Identify recording mode by specifying density only. Call NTIS Computer Products, if you have questions. Price includes documentation.

PB-272 909/3

Property Accounting and Inventory System.

Software. This system was developed to provide current information on all property items within the agency. The system provides the capability to immediately retrieve information for property reports, inquiries, and management. Form images are produced on the terminal CRT for updating by property management personnel. Data is then transmitted via IBM/TSO to the mainframe computer. Information is retrieved by the operator via EASYTRIEVE.

Software description: The system is written in the ANSI Cobol programming language for implementation on an IBM 370/168 computer using the OS/VS2 operating system. 64K bytes of core storage are required to operate the model.

Keywords: *Software, *Inventory control.

Availability: NTIS, CP **T12**, mag tape. Source tape is in EBCDIC character set. Tapes can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired. Call NTIS Computer Products if you have questions. Price includes documentation.

PB-274 018/1

Motor Vehicle Management System.

Software. The Motor Vehicle Management System was developed to provide current information on the ARS Motor Vehicle Fleet. Form images are produced on the terminal CRT for updating by fleet management personnel. Data is then transmitted via IBM/TSO to the mainframe computer. Information is retrieved by the terminal operator by using EASYTRIEVE. Products of the system are reports required by the Department, Agency and vehicle fleet managers.

Software description: The system was written in the ANSI Cobol programming language for implementation on an IBM 370/168 computer using the VS2, Release 1.6, operating system. 64K bytes of core storage are required to operate the system.

Keywords: *Software, *Inventory control, *Motor vehicles.

Availability: NTIS, CP **T12**, mag tape. Source tape is in EBCDIC character set. Tapes can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired. Price includes documentation. Call NTIS Computer Products if you have questions.

PB-275 068/5

System of Interactive Guidance and Information (SIGI)

Software. The purpose of Sigi is to help college students make informed and rational career decisions. Students interact with a computer to examine and explore their own values, obtain and use relevant information, interpret predictive data, and formulate plans. The interaction helps the students to arrive at tentative career decisions and to modify them in the light of new insights and additional information. The decisions include both educational and occupational options. The emphasis is not merely on the content of decisions but on developing competencies in the process of decision-making. Students learn to move freely within the structure of the system and to master strategies for rational behavior in the face of uncertainty.

Software description: The program was written in the Basic programming language for implementation on a DEC computer PDP-11/40 using the RSTS/E, version V 6A02, operating system. 128K bytes of core storage are required to operate the model.

Related documentation: PB-275 069/3, PB-275 070/1.

Keywords: *Software, *Career development, Students, Decision making, Predictions, Values, Occupational mobility, Educational programs, Curricula, Magnetic tapes, *SIGI system, Information systems.

Availability: NTIS, CP **T04**, mag tape. Source tape is in ASCII character set. Character set restricts preparation to 9 track one-half inch tape only. Identify recording mode by specifying density only. Call NTIS Computer Products, if you have questions. Price includes documentation.

Field 10—GOVERNMENT ADMINISTRATION AND SERVICES

PB-275 663/3

Property Inventory System.

Software. The property Inventory System manages property records each of which contains an item's name, description, U.S. property number, dollar value, and other pertinent information. Up to 3690 characters of information may be collected for each item. The system consists of a program to update the property file and a program to generate a variety of reports using various sort options.

Software Description: The system is written in COBOL for implementation on a UNIVAC 1110 under EXEC 8. Approximately 50K words of core storage are required.

Related documentation: PB-275 664/1.

Keywords: *Software, *Inventory control.

Availability: NTIS, CP **T08**, mag tape. Source tape is in EBCDIC character set. Tape(s) can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Price includes documentation.

PB-292 901/6

Payroll/Personnel Management System (PPMS-COBOL).

Software. The Payroll/Personnel Management System (PPMS-COBOL) achieves its objectives through the use of three key system features: (1) A comprehensive, fully integrated data base whose input is controlled almost entirely by the user departments; (2) on-line communications for timely inquiry or updating of Payroll/Personnel data; and (3) creation of position and transaction files that help provide control and ensure accuracy of employee and associated data. The data base maintained by a computerized system is the limiting factor in terms of system capability. The systems are so designed that not all functions need be implemented at one time. This concept allows recipient sites to implement a basic payroll/personnel system while retaining the capability to expand the system at a later date. With the exception of those reports using preprinted forms, or based upon statutory requirements, the system is designed to provide complete flexibility in report format and control.

Software Description: The system is written in the COBOL programming language for implementation on a Honeywell H-2040A computer using the OS-2000 operating system.

Related documentation: PB-292 902, PB-292 903.

Keywords: *Software, *Salaries, *Government employees, Magnetic tape, Personnel management, Local government, Management systems, Computer programs, Benefit cost analysis, User needs.

Availability: NTIS, CP **T10**, mag tape*. Source tape is in EBCDIC character set. Character set restricts preparation to 9 track one-half inch tape only. Identify recording mode by specifying density only. Call NTIS Computer Products if you have questions. Price includes documentation.

PB-297 795/7

Forms Management and Directives Online Updata and Retrieval Systems.

Software. The Forms Management system was developed to provide current information about forms used within the agency. The Directives system was developed to provide current information about Agency Directives. Form images are produced on the terminal CRT for updating by clerks; data is then transmitted via IBM/TSO to the mainframe computer. Retrievals are allowed on demand using Easytrieve to select and print records. Products of the Forms Management system include a published alphabetical subject index of directives issued quarterly and lists of directives selected by number, subject, forms referenced, data of change, and cross-reference to other directives. Products of the Directives system include a published numeric al index of forms issued periodically, cross-referenced to the ARS directives system; and listings of forms information selected by number, reports control symbol, subject, office of primary interst, data of issue and unit of issue.

Software Description: The systems are written in the ANSI Cobol programming language for implementation on an IBM 370/168 computer using the OS/VS2, release 1.6, operating sytem. 64K bytes of core storage are required to operate the systems.

Keywords: *Software, *Forms(Paper), *Management information sytems, National governments, Information systems, Data processing, Data retrieval, Government policies, Indexes(Documentation), Magnetic tapes.

Availability: NTIS, CP **T12**, mag tape . Source tape is in EBCDIC character set. Tapes can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density and parity. Call NTIS Computer Products if you have questions. Price includes User's Guide.

PB80-117120

Public Facilities Location Package.

Software. The Package consists of two new methodologies to assist local governments in deciding how many public services are needed, and where those services should be located: an Ambulance Services Location Package and a Leisure Services Location Package. The latter has been used to address such questions as: what are the strengths and weaknesses of current park and recreation service. Are the people in need of recreation and leisure service being served. Where are leisure services duplicating each other. Is the proposed new recreation center really needed. The Ambulance Services Location Package has been used for deciding how many ambulance units are needed, where they should be located, and what the response areas should be for each unit. Both packages consist of writtern manuals, worksheets, and computer programs.

Software Description: The program is written in the Fortran programming language for implementation on a IBM computer using the OS/MVT operating system. 100K bytes of core storage are required to operate the model.

Related documentation: PB-300 219, PB-300 220, PB-300 221, PB-300 222.

Keywords: *Software, *Local government, *Recreation, *Ambulances, Position(Location), Medical services, Computer programs, Manuals, Sites, Urban planning, Recreational facilities, Parks, Magnetic tapes, *Emergency services, Leisure activities, Facilities.

Availability: NTIS, CP **T06**, mag tape*. Source tape is in EBCDIC character set. Tapes can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired. Call NTIS Computer Products if you have questions. Price includes documentation.

PB81-210338

Computer Directed Training System (CDTS).

Software. The H6000 Computer Directed Training System (CDTS) is a general purpose computer assisted instruction (CAI) package that uses the capability of the Honeywell Series 6000 computer to present instructional materials to trainees via remote terminals. CDTS consists of two executive programs, one general utility program, one compiler program, and one student records summary program. The executive programs control the presentation of lesson material which is retrieved from a disk file to a student using a remote terminal. Student responses are read and evaluated to control the flow of the lesson. Records of student activity are generated for accumulation, summary, and analysis. The general utility program provides file maintenance support for CDTS. The compiler program converts lesson material from source form to object form for eventual execution by the executive programs. Through the use of the CDTS coursewriter, new lessons/courses can be designed and added to the inventory of CDTS courses. The student record summary program produces a summary of student activity containing information of interest to local training monitors.

Software Description: The system is written in the Cobol and GMAP programming languages for implementation on a Honeywell Series 6000 computer using the GCOS 6.4 operating system. Core storage requirement to operate the system is 8K 36-bit words.

Related documentation: PB81-210346, PB81-210353.

Keywords: *Software, Instructional materials, Computer programming, Specialized training, Data retrieval, Utility routines, Cobol, Magnetic tapes, *Educational programs, *Computer assisted instruction, *Training programs, File maintenance, CDTS system, NTISDODAF.

Availability: NTIS, CP **T14**, mag tape*. Source tape is in ASCII character set. Character set restricts preparation to 9 track, one-half inch tape only. Identify recording mode desired by specifying density only. Call NTIS Computer Products if you have questions. Price includes documentation. Sales restricted to Federal, state, and local governments only.

11. HEALTH CARE

PB-249 491/2

The Nursing Home Simulation Model User's Manual - FORTRAN IV Version (Software Tape).

Models-simulation. Two parallel concerns, adequacy of staffing and cost, are the basis for the development of the Nursing Home Simulation Model. The model was developed to help health planners, facility administrators, and regulatory agencies evaluate the effectiveness and efficiency of alternatively configured long-term care facilities providing different types of care to a variety of patient population. It can also evaluate the cost of effectiveness of meeting nursing care requirements of residents under alternative staffing configurations and systems for the delivery of care. The report describes the Nursing Home Simulation Model and the experiments that validate its characterization and evaluates its usefulness as a planning and regulatory tool for long-term care facilities.

Software Description: The model is written in the FORTRAN IV programming language for implementation on an IBM 360 computer using the OS operating system.

Related documentation: PB-242 766, PB-248 726.

Keywords: *Models-simulation, Software, *Nursing homes, Health planning, *Health care facilities, Magnetic tapes, Data storage, Long term care, Models, Simulation, Nursing, Evaluation, Health care costs, Health care requirements, Health resources, Computer programs.

Availability: NTIS, CP **T05**, 1 reel mag tape. Source tape is in EBCDIC character set. Tape can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired. Call NTIS Computer Products if you have questions. Price includes documentation.

PB-249 492/0

The Nursing Home Simulation Model User's Manual - Simscript 1.5 Version (Software Tape).

Models-simulation. Two parallel concerns, adequacy of staffing and cost, are the basis for the development of the Nursing Home Simulation Model. The model was developed to help health planners, facility administrators, and regulatory agencies evaluate the effectiveness and efficiency of alternatively configured long-term care facilities providing different types of care to a variety of patient population. It can also evaluate the cost of effectiveness of meeting nursing care requirements of residents under alternative staffing configurations and systems for the delivery of care. The report describes the Nursing Home Simulation Model and the experiments that validate its characterization and evaluates its usefulness as a planning and regulatory tool for long-term care facilities.

Software Description: The model is written in SIMSCRIPT 1.5 for implementation on an IBM 360 series computer.

Related documentation: PB-242 766, PB-248 862.

Keywords: *Models-simulation, Software, *Nursing homes, *Health planning, Health care facilities, Magnetic tapes, Data stor-

age, *Long term care, Models, Simulation, Nursing, Evaluation, Health care costs, Health care requirements, Health resources, Computer programs.

Availability: NTIS, CP **T05,** 1 reel mag tape. Source tape is in EBCDIC character set. Tape can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions. Price includes documentation.

PB-252 536/8

Hospital Management Systems Demonstration.

Models-simulation. Nine documents, a magnetic tape with 26 separate files, and hard copy output (printout) describe 5 broad program areas. These areas are: (1) Admissions Game; (2) Admissions Simulator System; (a) PAS Data Conversion; (b) Simulator Data Preparation from PAS Converted Data; (c) Admissions Simulator; (3) Manpower Budget System; (4) Nurse Scheduling System; and (5) Nurse Allocation System. Specifications and documentations of these systems are addressed in the document entitled 'Hospital Management Systems Demonstration Computer Program Specifications.' The preceding document (NCHSR 76-314) details the formats for the 26 files and describes the hard-copy output and the other 8 documents (NCHSR 76-307 through NCHSR 76-313, NCHSR 76-15 and NCHSR 76-16) comprise the title of this tape. Specifications were prepared to minimize problems with operationalizing these programs under different computer-system environments.

Software Description: These programs were developed for IBM 360-370 compatible machines and rely upon certain Michigan Terminal System (MTS) specific subroutines as currently programmed.

Related documentation: PB-252 527, PB-252 528, PB-252 529, PB-252 530, PB-252 531, PB-252 532, PB-252 533, PB-252 534, PB-252 535.

Keywords: *Models-Simulation, Hospital management, PL/1 programming language, FORTRAN, Magnetic tapes, Data storage, Simulation, Hospital administration, Nurses, Allocations, Questionnaires, Health manpower, Specifications, Manuals, Systems analysis, *Hospitals, *Management information systems, *Information systems, Hospital information systems.

Availability: NTIS, CP **T05,** 1 reel mag tape. Source tape is in EBCDIC character set. Tape can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions. Price includes documentation.

PB-254 202/5

Emergency System Simulator (ESSIM): Overview, User's Guide, Simulator Program Listing, and Report Writer Program Listing (Software Tape).

Software. More than any aspect of medical care, handling of emergency cases depends upon a close coordination of community resources. However, emergency care in many communities still is characterized by a fragmented assortment of transportation, communication, hospital, and physician services. Hospitals not infrequently have been concerned only with the operation of their own emergency rooms. Ambulance organizations and police and fire departments have each developed their own procedures for responding to requests for emergency assistance, placing little emphasis on coordination among themselves or between emergency transportation operations and hospital emergency departments. ESSIM (Emergency System Simulator) is an event-paced simulation model that allows EMS planners to investigate the interdependencies among various elements comprising an EMS system. Because it explicitly considers communications capabilities, transportation resources, and hospital emergency department resources, the model can address a variety of system planning issues.

Software Description: The progrm is written in the PL/1 programming language for implementation on an IBM 360 computer using the OS operating system.

Related documentation: PB-254 203, PB-254 204.

Keywords: *Software, *Emergency services, Magnetic tapes, Data storage, Computerized simulation, Models, Health care delivery systems, *Medical services.

Availability: NTIS, CP **T03,** 1 reel mag tape. Source tape is in EBCDIC character set. Tape can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired. Call NTIS Computer Products if you have questions. Price includes documentation.

PB-259 882/9

Hypercube Queuing Model. Release 1.0.

For complete citation, see 10 **Government Administration and Services.**

PB-259 884/5

Parametric Allocation Model. Release 1.0.

For complete citation, see 10 **Government Administration and Services.**

PB-259 885/2

Program for Determining the Travel Characteristics of Emergency Service Vehicles. Release 1.0.

For complete citation, see 10 **Government Administration and Services.**

PB-272 036/5

CLINIC Simulation Model.

Models-simulation. The CLINIC model is a Monte-Carlo simulation that can replicate a large variety of outpatient medical and health facilities. It is a tool to improve patient flow by determining patient waiting time and provider utilization, which will assist both the design of new facilities and the re-design and management of existing facilities. The flexibility of the model is obtained by specifying the input variables, either one or two types of primary providers, the number of each type of provider, their working schedules, and their referral patterns. It is possible to exert hour by hour control of the arrival of walk-in and/or emergency patients. The numbers and time

of arrival of appointment patients are controlled separately for each physician. Finally, by setting the appropriate values equal to zero it is possible to inhibit any un-needed options in the model.
Software Description: This model is written in the Fortran programming language for implementation on a CDC Cyber 74 computer using the NOS operating system. 63K characters of core storage are required to operate the model.
Related documentation: PB-262 229.

Keywords: *Models-simulation, *Health care facilities, *Ambulatory health care, Computerized simulation, Operations research, Mathematical models, Magnetic tapes, Data storage, Outpatient clinics, Patients, Scheduling, Monte Carlo method, Health care utilization, Management, Medical services, Design, Health services administration.

Availability: NTIS, CP **T06**, mag tape*. Source tape is in EBCDIC character set. Tape(s) can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions. Price includes documentation.

PB-279 578/9

PLAN Program Tape: A Computer Model for Planning Locations, Capacities and Schedules of Outpatient Facilities.

Software. The tape contains Program PLAN, a model for utilizing behavior parameters along with economic information and social and physical constraints for the purpose of planning the network of outpatient facilities in a region. The behavioral parameters relate to the way convenience effects how distance and waiting time affect patterns of attendance at each of a set of competing ambulatory care facilities. The model uses a heuristic pattern-search to obtain solutions to enable a planner to rank alternative locations for one or more new facilities and also determine which facilities might best be shut down or merged.
Software description: This Program is written in the Fortran programming language for implementation on a CDC, Cyber 74, using the NOS operating system 63K bytes of core storage are required to operate the model.
Related documentation: PB-279 579/7.

Keywords: *Software, *Health care facilities, Ambulatory health care, Outpatient clinics, Magnetic tapes, Data storage, Models, Sites, Medical services, Health planning, PLAN computer program, HRP/AD, HRPOCC/XZ, HRP/MDE, HRP/TBCC.

Availability: NTIS, CP **T04**, mag tape. Source tape is in EBCDIC character set. Tapes can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer products if you have questions. Price includes documentation.

PB-280 652/9

Hospital Management Systems Demonstration Program Tape: Final Report.

Models-simulation. Magnetic tape containing 56 separate files and a program documentation report entitled: 'The Admissions Scheduling and Control System: A Comprehensive Hospital Admissions Modeling and Simulation System II' is designed to model and simulate the typical as well as atypical hospital configurations including progressive care step-down units. The programs lend themselves to update. Not only are further refinements in the modeling methodology possible, but it is also possible to augment the programs at some future date to accommodate the development of operating room scheduling and nurse staffing methodologies based on the Admissions Scheduling and Control System Models. The report consists of documentation for the dual program simulation system MODELUP and NEWSIM written in PL/I and at alternate version of the dual program simulation routine called CHAMSS using an IBM 360/370 assembly coded simulation routine in lieu of the PL/I version. MODELUP and NEWSIM are currently implemented on an AMDAHL 470V/6 with a core capacity of approximately 4 mega-bytes and operates under the MTS (University of Michigan Terminal System) operating system. Adjusting for a few facility subroutines, both can be implemented on any computer system which supports the IBM PL/I (f) compiler and has sufficient core capacity. An earlier version of the Admissions Scheduling and Control System Simulator, written in Fortran, has been well tested and proven reliable.
Related documentation: PB-280 633/9, PB-280 634/7, PB-280 635/4, PB-280 636/2, PB-280 637/0, PB-280 638/8, PB-280 639/6, PB-280 640/4, PB-280 641/2, PB-280 642/0, PB-280 643/8, PB-280 644/6, PB-280 645/3, PB-280 646/1, PB-280 647/9, PB-280 648/7, PB-280 649/5, PB-280 650/3, PB-280 651/1.

Keywords: *Models-simulation, *Hospitals, *Management information systems, Hospital administration, Magnetic tape, Data storage, Health care delivery organizations, Scheduling, Cost control, Containment, Health care costs, Admissions(Health care facilities), Hospital information systems.

Availability: NTIS, CP **T07**, mag tape. Source tape is in EBCDIC character set. Tapes can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired. Call NTIS Computer Products if you have questions. Price includes documentation.

PB-280 685/9

Financial Planning Model (FPM) for Health Maintenance Organizations (HMOs) Program Tape.

Models-simulation. The Financial Planning Model (FPM) Program Tape contains all of the necessary program and files to initiate a computerized financial planning model for HMOs. The planning model is designed to help HMO planners to evaluate alternative HMO configuration with regard to financial viability over a five year planning horizon. The FPM operates in a batch processing mode. Users can use this model to simulate the financial conditions of an HMO when a number of design variables are allowed to vary.
Software description: This model simulation is written in the COBOL programming language for implementation on an IBM 360 computer using the OS MVT/HASP operating system. 300K bytes of core storage are required to operate the model.
Related documentation: PB-280 686/7.

Field 11—HEALTH CARE

Keywords: *Models-simulation, Health maintenance organizations, Health planning, *Financial management, Health care costs, Magnetic tapes, Health care delivery organizations, *Health insurance.

Availability: NTIS, CP **T05**, mag tape. Source tape is in EBCDIC character set. Tapes can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions. Price includes documentation.

PB-289 911/0

Indiana Medicaid Management Information System.

Software. The Indiana Medicaid Management Information System (MMIS) library tape consists of (4) MMIS Copy Program libraries: Program library, Macro library, Process library, and Copy library. The library tape supports the Indiana MMIS Detail Design documentation which is based on the MMIS General System Design for Title XIX. Each of the (4) libraries reside as a file on the tape. The attributes of the files are as follows: File (1) DSN=MMIS. COPY. PROGLIB; DCB=(BLKSIZE=24000, LRECL=80, RECFM=FB); File 2 DSN=MMIS. COPY. MACLIB; DCB=(BLKSIZE=24000, LRECL=80, RECFM=FB); File 3 DSN=MMIS. COPY. PROCLIB; DCB=(BLKSIZE=24000, LRECL=80, RECFM=FB); File 4 DSN=MMIS. COPY. COPYLIB; DCB-(BLKSIZE=24000, LRECL=80, RECFM=FB). Files 1 and 2 are sequential data sets. Files 3 and 4 are part-timed data sets (PDS). Utility IEBCOPY and IEBGENER were used to generate tape copy from source tape. Tape print available with this tape shows first 75 lines of each of (4) data sets. Also available is tape print of utility program 1EBGENER showing job creation of tape number 90974.
Software Description: The program is written in the COBOL programming language for implementation on an IBM 370/168 computer using the MVS operating system.
Related documentation: PB-236 550/SET.

Keywords: *Software, *Information systems, *Indiana, *Social welfare, Health insurance, *Management information systems, *Health care delivery systems.

Availability: NTIS, CP **T06**, mag tape. Source tape is in EBCDIC character set. Character set restricts preparation to 9 track one-half inch tape only. Identify recording mode by specifying density only. Call NTIS Computer Products, if you have questions. Price includes documentation.

PB81-160491

ADTECH - Impact of Administrative Technology on Acute Bed Need.

Software. ADTECH-Impact of Administrative Technology on Acute Bed Needs Magnetic tape containing the computer source code (written in PL/1) used on NCHSR Grant No. 1 RO3 HSO3518-01 'Impact of Administrative Technology on Acute Bed Need'. Included are the main simulation program used to assess the impact of admission scheduling systems, outpatient surgery programs, and preadmission testing programs on a hospital's bed complement as well as five utility subroutines.
Software Description: The program is written in the PL/1 program language for implementation on a AMDAHL 470/V7 (IBM 370 Compatible) computer using the Michigan Terminal System (MTS) operating system. 80K bytes of core storage are required to operate the model.
Related documentation: PB81-160509, PB81-160517, PB81-160525, PB81-160533, PB81-160541, PB81-160558.

Keywords: *Software, Compute programming, Utility routines, Computer programs, Magnetic tapes, *Bed needs, Health resources, Administration, *Health care requirements, PL/1 programming language, Amdahl-470/V7 computers, IBM-370 computers.

Availability: NTIS, CP **T05**, 1p. Source tape is in EBCDIC character set. Tapes can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions. Price includes documentation.

PB81-196453

Evaluation of Findings from Nurse Practitioner and Physician Assistant Studies: PE Aggregate Data File and Related Software.

Software. This tape contains data from nine studies on physician assistants, nurse practitioners, and nurse midwives. These are: Longitudinal study to Evaluate the education, functions, utilization of nurses in extended roles, SUNY, Buffalo, 1976; Physician assistant status study, UNC, 1976; Survey and evaluation of the physician extender reimbursement study, System Sciences, 1978; Baseline data for the physician extender reimbursement study, USC, 1978; Physician assistant characteristics, performance and satisfaction, Perry, 1975; Assistant physician profession profile, AAPA/APAP, 1977; Nurse-midwifery in the United States: 1976-1977, ACMN, 1978; and Family nurse practitioners in primary care, Peszknecker and Draye, University of Washington, 1978. The second file contains card image records of all software and study file tables used to develope the first file. Each program or table is preceded by a delimeter card with an 'at' sign in column one and the name of the program or table in columns 2-8. Those names are: DBLOAD, DBPRINT, DBUPD, DABEATS, Titles. The program (DBLOAD, DBPRINT, DBUPD) are described in appendix C-3 of the final report. The tables contain the titles and caveats for each study file and are described in appendix C-2.
Software Description: The program is written in the PL/I programming language for implementation on an IBM 370 computer using the MVS operating system. 1000K bytes of core storage are required to operate the model.
Related documentation: PB81-196461, PB81-196479.

Keywords: *Software, Employment, Policies, Evaluation, Education, Manpower utilization, Surveys, Roles(Behavior), *Medical personnel, Allied health personnel, Nurse practitioners, Physicians assistants, Nurse midwives, Reimbursements, *Health manpower, NTISHRAHSR.

Availability: NTIS, CP **T05**, mag tape. Source tape is in EBCDIC character set. Tapes can be prepared in most standard 7 or 9

track recording modes for one-half inch tape. Identity recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions. Price includes documentation.

PB81-233934

PILOT (LHC 8080).

For complete citation, see 1 **Biological and Medical Sciences.**

12. LIBRARY AND INFORMATION SCIENCES

AD-A029 520/4

Army Uniform Data Inquiry Technique (AUDIT).

Software. AUDIT is a data retrieval system which features a user oriented specification language and precompiler which generates COBOL source programs for compilation and execution in a batch processing environment. Capabiiities of AUDIT include: high level user language, field editing, algebraic computation, Boolean selection logic, random sample extraction, statistical analysis of data fields, sorting, report generation, extract file generation, multiple extraction/reporting per file pass. Source programs and JCL are for IBM 360 OS or DOS configurations however the system has been converted by other uses for operation on the Univac 494, Univac Series 70/45, Univac 1108 and Honeywell 6050. Included on the tape are the necessary COBOL programs (4) which comprise AUDIT.

Software Description: This program is written in the COBOL programming language for implementation on IBM 360/370 computer with either the OS or DOS operating system. The program requires 100K bytes of core storage for implementation.

Related documentation: AD-A029 521, AD-A029 522, AD-A029 523.

Keywords: *Software, Computer programs, *Management information systems, *Auditing, Army operations, Compilers, Boolean algebra, Scheduling, Magnetic tape, AUDIT system.

Availability: NTIS, CP **T03**, Mag tape. Source tape is in EBCDIC character set. Tape(s) can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions. (No copies furnished by DDC). Price includes documentation.

AD-A056 057/3

Generalized Report Generation and Analysis Package, Adaptable to Mini-Computers

For complete citation, see 7 **Computer Sciences.**

AD-A059 541/3

Advanced Information System Network.

Software. Phase One of the Advanced Information System (AIS) Communication System (CS) has as its objective the orderly, timely, and errorless exchange of messages between processes physically removed from one another. Processes need only supply logical destination for a message without reference to the physical location or access route. It is the responsibility of the Communication System to do the following: (1) Convert logical source and destinations to physical sources and destinations; (2) Resolve multiple addressee requirements during logical to physical mapping; (3) Provide character transliteration where necessary; (4) Determine the transmission route for any message; (5) Protect privacy and national security data where applicable; (6) Be statically reconfigurable so that the CS can be physically reconstructured while in an off-line state with software modification.

Software Description: The system is written in the Assembly programming language for implementation on an Interdata 7/32 computer using the OS 32MT R02 operating system. The computer memory requirement is 256K.

Keywords: *Software, *Information systems, Intercommunication systems, Computer programs, Message processing, *Computer networks, Advanced Information System, Magnetic tapes, *Telecommunication.

Availability: NTIS, CP **T04**, mag tape. Source tape is in ASCII character set. Tape(s) can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired. Call NTIS Computer Products if you have questions. Price includes documentation.

AD-768 024/2

Generalized Information Retrieval Language (GIRL): Computer Program,

Software. The Generalized Information Retrieval Language (GIRL) permits the non-computer-oriented person to access, select, sort, print, and summarize records that are established on tape, cards or disk. This means that the trained user can define and structure the report that will best serve his needs. The user codes the English language statements that will specify the information desired on a particular report.

Software Description: The program is written in the COBOL programming language for implementation on a Burroughs 2500/3500 computer using the MCP operating system. The computer core storage requirement is 30K.

Related documentation: AD-768 023/4.

Keywords: *Software, Programming(Computers), *Information retrieval, GIRL programming language, Data management systems.

Availability: NTIS, CP **T04**, 1 reel mag tape. Specify tape recording mode desired. Price includes documentation.

PB-232 272/5

FAST: File Analysis and Selection Technique.

For complete citation, see 7 **Computer Sciences.**

PB-248 065/5

USAC Geographic Based Index System (GBIS) - Municipal COBOL Computer Programs Module Magnetic Tape. Release No. 1.

For complete citation, see 14 **Municipal Information Systems.**

PB-262 383/3

Key Word Index.

Software. These programs are used to process a special deck of punched cards containing author names, titles, source, subjects, abstracts and bibliographic information for all holdings in a library. These data are processed thru 8 COBOL and assembly language programs which select and code the information for printing in alphabetical order by author name, titles, and key words.
Software Description: These programs were written in the Assembly, COBOL and FORTRAN programming languages for implementation on a UNIVAC 70-45 computer using the TDOS-21 operating system. 100K bytes of core storage are required to operate the system.

Keywords: *Software, *Information systems, Authors, Magnetic tapes, *Subject index terms, Libraries.

Availability: NTIS, CP **T06**, mag tape. Source tape is in EBCDIC character set. Tape(s) can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Call NTIS Computer Products if you have questions. Price includes documentation.

PB-277 362/0

Computer Output Microfilm Generator.

For complete citation, see 7 **Computer Sciences.**

PB-277 411/5

Data Dictionary/Directory.

Software. It is the policy of the VA that data is a resource which must be managed and controlled. The immediate goal of the VA is to make maximum use of the existing data resource without restricting it. The quantity of data maintained by the VA is so great that the only way to manage and control it is to list what exists and to describe it. An effective means of listing and describing is a Dictionary/Directory. The VA Data Dictionary is an inventory of VA automated data processing applications and descriptions of their component data elements, master files and reports. This comprehensive and detailed inventory of data elements provides a structure to control changes to the current data resource and serves as the key first step towards future standardization efforts.
Software Description: The program is written in the ANS COBOL programming language for implementation on an IBM 360/40 computer using the OS/MFT, release 21.8, operating system. 90K bytes of core storage are required to operate the model.
Related documentation: PB-277 412.

Keywords: *Software, Magnetic tapes, *Data dictionaries.

Availability: NTIS, CP **T06**, mag tape. Price includes documentation.

PB-289 911/0

Indiana Medicaid Management Information System.

For complete citation, see 11 **Health Care.**

PB-297 795/7

Forms Management and Directives Online Updata and Retrieval Systems.

For complete citation, see 10 **Government Administration and Services.**

PB-297 874/0

NIH Telephone Service Directory and Information Locator System.

Software. The information locator was originally designed as a low cost version of the large Directory Assistance package used by many telephone companies. A main concern was for up-to-date camera-ready copy to be available for publication of the telephone directory. Two methods of information retrieval are supported: One is for the alphabetic files (the employees and patients), the other is for those files which have no logical method of organization. An example of such a file would be the organizational listing found in most government telephone books, which are organized by position within division. These files may be accessed as related records and viewed by scrolling backward or forward to locate information desired. The alphabetic files are accessed by keying in the first 3 letters of the last name (ex: SMI would cause displaying of all records from SMIA to SMIZ.) All additions, deletions or changes to the file are available immediately.
Software Description: The program is written in the Event Driven Executive (EDX) programming language for implementation on an IBM Series I minicomputer using the EDX operating system. 48k bytes of core storage are required to operate the system. At least one 4979 Display Terminal and a 4974 Printer is required for successful operation of the system.
Related documentation: PB-297 875.

Keywords: *Software, *Directories, Telephone systems, Information retrieval, Personnel, Magnetic tapes, Minicomputers, *Telephone directories.

Availability: NTIS, CP **T06**, mag tape*. Source Diskette is in EBCDIC character set and was recorded with the IBM Series I Event Driven Executive (EDX) Operating System. Copying is limited to the EBCDIC character set and the EDX Diskette format. Call NTIS Computer Products if you have questions. Price includes documentation.

PB80-202658

ILS (Integrated Library System).

Software. The ILS represents a developmental effort of the Lister Hill National Center for Biomedical Communications of the National Library of Medicine, designed to achieve a level of functional integration, small system implementation potential, and user features not presently available in library systems. The

specific ILS design objectives have been (1) to achieve a modular integration of functional capabilities, (2) to allow for small system implementation, (3) to maximize transportability, (4) to have sizing dependent only on hardware, (5) to provide for system network access, and (6) to support multi-level user interfaces. The present release Version 1.0, contains the ILS kernal and the following functional modules: Circulation Control, Serials, Check-In, Master Bibliographic File (MBF), Creation and OCLC Tape Loading. ILS is implemental under the MIIS/MUMPS operating systems.
Software Description: The program is written in MIIS programming language for implementation on a Data General Eclipse C-330 computer using the Meditech MIIS 4.2 operating system. 265 K bytes of core storage are required to operate the system.
Related documentation: PB81-188039, PB82-114968.

Keywords: *Software, *Library science, Computer programming, Libraries, Descriptive cataloguing, Document circulation, Systems analysis, Magnetic tapes, Records management, Information systems, *Libraries, *Information systems, *Integrated library systems, Library automation, Library circulation, Minicomputers, File maintenance, File management systems.

Availability: NTIS, CP **T99**, mag tape*. Source tape is in ASCII character set. Character set restricts preparation to 9 track, one-half inch tape only. Identify recording mode by specifying density only. Call NTIS Computer Products for price. Price includes documentation.

PB80-224975

Construction Management Control System.

For complete citation, see 5 **Civil and Structural Engineering.**

PB81-130114

OMEGA - Interactive Data Entry and Validation System.

For complete citation, see 7 **Computer Sciences.**

PB81-182966

Expand GPO Catalog Number for Sorting Purposes.

Software. This module expands a catalog number (Classification Number) which is passed as an argument from a calling program using standard linkage conventions. The catalog number is passed as a left justified field in a 100 position area padded with spaces or low-values. The catalog number is scanned for delimiters (spaces, periods, colons, slashes, dashes, or low-values) and their locations and number of occurrences are stored for the edit/expansion routine. There are two major components in the catalog number - the class stem, which in most cases is delimited by a colon, and the book identification, that terminates with either spaces or low-values. The class stem can have from one to six fields which ordinarily represent the author, subordinate office, major series, intermediate subseries, minor subseries and a field to handle congressional items (Author Y3 and Y4) that are exceptions to the normal five-field structure. The fields comprising the class stem are edited to determine that there is a colon, that there are no more than six fields, and that the lengths of the fields do not exceed predefined limits. Should any of the criteria not be met, two spaces followed by an appropriate message are returned to the calling program; otherwise, the fields are justified and padded according to their type - ie, numeric or alphanumeric. From one to six seven-position fields in the book identification position of the catalog number are justified and padded according to their type, and any remaining characters (up to 30) are suffixed for additional sort precision.
Software Description: This program is written in the ALC programming language for implementation on an IBM 370/145 or IBM 370/158 computer using the OS/VS operating system. 3K bytes of core storage are required to operate the routine.

Keywords: *Software, *Sorting routines, Computer programming, Government Printing Office, National Government, Federal cataloging system, Magnetic tapes, *Classifications, *Cataloging.

Availability: NTIS, CP **T03**, mag tape. Source tape is in EBCDIC character set. Tapes can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions.

PB81-184673

Workload Control and Tape Library Maintenance.

Software. The Workload Control and Tape Library Maintenance System provides the DPI using the B3500 computer the capability of scheduling and/or forecasting their projected workload requirements and the management of the magnetic tapes used in the operation of the computer. It also provides the capability to schedule the RSB sites' inputs and outputs. Certain programs within the system have been enabled utilizing a combination of the single-pass and multi-pass concepts of operation. The Workload Control Subsystem is designed to operate as automatically and efficiently as possible, taking full advantage of third generation techniques and equipment. The Tape Library Subsystem processing provides full inventory and updating facilities. The system has two other interfaces as well: they are the Print/Punch Interface File which is used by the backup utility programs to notify the computer operator of part paper/special form requirements, and the use of FMS files to gather statistical data to update run times and other utilization information.
Software Description: This system is written in the COBOL programming language for implementation on a Burroughs 3500/4700 computer using the MCP operating system. Core storage requirement to operate model is 60KD.
Related documentation: PB81-184699, PB81-184681.

Keywords: *Software, *Inventory control, *Magnetic tapes, Computer programming, Scheduling, Libraries, Cobol, *File maintenance.

Availability: NTIS, CP **T14**, mag tape. Source tape is in EBCDIC character set and certain fields contain packed decimal data. Character set restricts preparation in 9 track one-half inch tape only. Identify recording mode by specifying density only. Call NTIS

Computer Products if you have questions. Sales restricted to Federal, state, and local governments only. Price includes documentation.

PB81-194748

Chemical Substances Information Network Pre-Prototype Intelligent Terminal System.

Software. The pre-prototype intelligent terminal is an easy-to-use tool for posing queries to many chemical information systems. In its simplest form, the terminal acts like any other terminal connected by a telephone line to a remote computer system. That is, the user can call up a remote system, log into the system, and interact with the system to obtain the desired information. The pre-prototype intelligent terminal, in addition, has several features which make it valuable to users who need quick and reliable access to many chemical information systems. The pre-prototype intelligent terminal enables the user to: Connect to any remote system recognized by the intelligent terminal. 'Capture' data output from the remote system. Transform 'captured' data into a query to another remote system. 'Substitute' this transformed query for keyboard input to another remote system. Create and alter data files with the data file editor. Perform file maintenance functions.
Software Description: The program is written in the Z-80 Assembler & C programming language for implementation on a ZILOG Z-80 computer using the SDOS or CP/M operating system. The computer memory requirement is 56K.
Related documentation: PB81-174468, PB81-174476, PB81-174484.

Keywords: *Software, *Information systems, *Chemical compounds, Computer programming, Data processing terminals, Magnetic tapes, Chemical information systems, Computer networks.

Availability: NTIS, CP **T99,** 1p*. Source tape is in ASCII character set. Character set restricts preparation to 9 track, one-half inch tape only. Identify recording mode by specifying density only. Call NTIS Computer Products for price. Price includes documentation.

13. MATHEMATICS AND STATISTICS

PB-230 443/4

Longley's Normalized Modified Gram-Schmidt Algorithm Linear Least Square Regression Analysis (six programs).

Software. A library package consists of six programs for least squares regression analysis: A plot program for preregression analysis; a fixed dimension linear least squares program that will process a 500x31 order matrix with an alternative of a 500x21 order matrix; a subroutine with variable dimension statements to enable the user to adjust core to the size of the problem; a program that performs various transformations upon the data to be processed by the subroutine above; a weighted least squares regression program which can also be used with variable dimension statements; a program that processes square nonsymmetric matrices up to a 100x100 order matrix also available with variable dimension statements. Except for the plot program, data can be read in short or long precision. The transformation program can be used with user suppled format statements from cards or tape by row or column. A variable dimension statement version of the transformation program is also available. Longley's NMGSA differs from most other algorithms in that the data are normalized first so that after the first row transpormation all inner products have limits of plus or minus 1.0.
Software Description: The program is in Fortran 4 for an IBM 360 computer, G and GI compiler.
Related documentation: PB-230 442/6.

Keywords: *Software, *Regression analysis, *Least squares method, Transformation, Algorithms, Modified Gram-Schmidt algorithm, *Statistical analysis, Fortran.

Availability: NTIS, CP **T03,** 1 reel mag tape. Tape recording mode: 9 track, Ebcdic, odd parity. Price includes documentation.

PB-232 114/9

General Tabulation System (GT)-Computer Program.

Software. The GT software system consists of five major components, the basic component being the General Tabulation Program itself. This program is designed to compute one or more of three types of tables: frequency distributions, weighted frequency distributions, and a table of sums of squares of weighted frequencies. The output from this program can be input to a means program, a standard deviations program, a percents program or a headers program. Aside from the ability to produce statistical tabulations on the input file itself, the system affords the additional flexibility of allowing the user to modify any record prior to its being processed by the General Tabulations Program.
Software Description: The program is written in ALC for implementation on IBM 360 computers. Approximately 100K bytes of core are required.
Related documentation: PB-232 113/1.

Keywords: *Software, Computer programming, *Statistical analysis, *Tabulation processes, Magnetic tapes, Standard deviation, Frequency distribution, Mean, General tabulation system, GT computer program.

Availability: NTIS, CP **T04,** 1 reel mag tape. Specify tape recording mode desired: 7 track, Bcd or 9 track, Ebdcic. Price includes documentation.

PB-263 474/9

SYSTEM 4204 - A Generalized Series of Summary Programs Generating Direct Expansions, Standard Errors, Coefficients of Variation and Correlation Coefficients

Software. The system 4042 accepts expanded data from either 1 or 2 probability sample frames, computes direct expansion estimates and standard errors at each summary level, and weighs these estimates into a single combined estimate.
Software Description: The system is written in the Fortran 4 programming language for implementation on an IBM 370/168 computer using the OS version,

Hasp level operating system. 168K, excluding buffers, bytes of core storage are required to operate the model.

Related documentation: PB-269 662.

Keywords: *Software, *Statistical analysis, Computer programs, Sampling, Estimates, Magnetic tapes, HASP operating system.

Availability: NTIS, CP **T08**, mag tape. Source tape is in EBCDIC character set. Tape(s) can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions. Price includes documentation.

PB-269 148/3

Polynomial Regression Analysis.

Software. The program calculates first, second, and third degree regression equations in arithmetic and natural logarithms of Y and X. The program has provisions for giving different significance to values based upon frequency and/or inverse or variance. Prints scatter diagrams with automatic or user-supplied scaling.

Software Description: The program is written in Fortran for implementation on a UNIVAC 1108 under EXEC 8. Approximately 10K words of core storage are required.

Related documentation: PB-269 149.

Keywords: *Software, Natural logarithms, *Regression analysis, Computer programs, Analysis of variance, Computation, Magnetic tapes, *Statistical analysis, Tape drives = one, Other = Card reader.

Availability: NTIS, CP **T08**, mag tape. Source tape is in EBCDIC character set. Tape(s) can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions. Price includes documentation.

PB-269 465/1

Generalized Analysis of Variance for Balanced Subclass Numbers.

Software. The program computes an analysis of variance for any factorial or pseudofactorial experiment where subclass numbers are balanced. All sources or any selected sources in the analysis of variance, including both cross classified and/or nested effects, are under parameter option. Also under parameter option are selected subclass means.

Software Description: The program is written in ALC for implementation on IBM 360/370 computers under OS. Approximately 48K bytes of core are required.

Related documentation: PB-269 466.

Keywords: *Software, *Analysis of variance, Computer programs, Factorials, Computation, Magnetic tapes, *Statistical analysis.

Availability: NTIS, CP **T05**, mag tape. Source tape is in EBCDIC character set and certain fields contain packed decimal data. Character set restricts preparation in 9 track one-half inch tape only. Identify recording mode by specifying density only. Call NTIS Computer Products if you have questions. Price includes documentation.

PB-269 487/5

Potency Probit Analysis.

Software. The program obtains the weighted linear regression of probits on dose or log-dose employing the maximum likelihood procedure described by D. J. Finney in 'Probit Analysis' (Cambridge University Press, 1962). The program will fit 2 to 12 parallel linear regression lines of 2 to 12 doses each giving all possible combinations of the ratios of equally effective doses, as well as points along the fitted line and their 95% fiducial limits.

Software Description: The program is written in Fortran for implementation on IBM 360/370 computers under OS. Approximately 48K bytes of core are required.

Related documentation: PB-269 488.

Keywords: *Software, Probit analysis, Computer programs, *Regression analysis, Maximum likelihood estimation, Dosage, *Statistical analysis.

Availability: NTIS, CP **T08**, mag tape. Source tape is in EBCDIC character set. Tape(s) can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions. Price includes documentation.

PB-269 561/7

Incomplete Block Design, Analysis of Variance.

Software. The program computes an analysis of variance for partially balanced incomplete block designs with two associate classes. When certain restrictions are applied it will compute an analysis of variance for balanced incomplete block designs. Also outputted are F values, unadjusted treatment means, and both the least squares adjusted means and the weighted, recovered adjusted means.

Software Description: The program is written in Fortran for implementation on IBM 360/370 computers under OS. Approximately 48K bytes of core are required.

Related documentation: PB-269 562.

Keywords: *Software, *Block design, *Analysis of variance, *Statistical analysis, Least squares method, Magnetic tapes.

Availability: NTIS, CP **T08**, mag tape. Source tape is in EBCDIC character set and certain fields contain packed decimal data. Character set restricts preparation in 9 track one-half inch tape only. Identify recording mode by specifying density only. Call NTIS Computer Products if you have questions. Price includes documentation.

PB-269 707/6

COBOL Census Tabulating System.

Software. COCENTS is a generalized computer system for the production of statistical tables. Although originally created for use in Census applications, it can satisfy the requirements of generating statistical tables for a host of managerial and business applications. The COCENTS system requires no data processing background for preparing the necessary parameter cards to generate the desired tables; one can easily teach their existing staff to use the system. The system requires a Cobol compil-

er, card reader, line printer, and three tape drives or one random access storage device.

Software Description: The system is written in COBOL for implementation on an IBM 370/168 under OS. Approximately 16K bytes of core are required.

Related documentation: PB-269 708.

Keywords: *Software, Demography, Computer programs, *Statistical analysis, Mathematical tables, Tape drives = three, Disc-drum units = one, COCENTS system, Statistical data, Tables(Data).

Availability: NTIS, CP **T08**, mag tape. Source tape is in EBCDIC character set. Tape(s) can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions. Price includes documentation.

PB-276 335/7

Statistics for Unweighted Data.

Software. This program computes 31 statistical measures of a string of unweighted numbers. The formulas were taken from the National Bureau of Standards Handbook 101. The data string is to be terminated with a zero, therefore no data point can be exactly zero as this would end the reading of data. The program counts the number of data points entered.

Software Description: The program is written in BASIC for implementation on a UNIVAC 1100/42 under EXEC 8. Approximately 18K words of core storage are required.

Keywords: *Software, *Statistical analysis, Software = Computer program, Combination processing mode, System application = Scientific/engineering, Disc-drum units = one, Computers terminals = one.

Availability: NTIS, CP **T05**, mag tape. All prices cited are for the North American Continent ONLY, all others write for quote. Source tape is in EBCDIC character set. Tape(s) can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions. Price includes documentation.

PB-276 459/5

Equate Linear Regression.

Software. This program produces an equation that best fits input points described by X and Y coordinates. This fit is made in the least-squares sense.

Software Description: The program is written in BASIC for implementation on a UNIVAC 1100/42 under EXEC 8. Approximately 18K words of core storage are required.

Keywords: *Software, *Regression analysis, Curve fitting, Least squares method, *Statistical analysis.

Availability: NTIS, CP **T05**, mag tape. All prices cited are for the North American Continent ONLY, all others write for quote. Source tape is in EBCDIC character set. Tape(s) can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions. Price includes documentation.

PB-276 570/9

Statistical Measures

Software. This program performs a statistical analysis on data for one variable. It computes 34 different measures for an array of weighted (as with frequencies) or unweighted values of the variable. It also gives a 10-class frequency distribution summary, and a recapitulation of the input data in terms of deviations from the mean and as an ordered array.

Software Description: The program is written in BASIC for implementation on a UNIVAC 1100/42 under EXEC 8. Approximately 32K words of core storage are required.

Keywords: *Software, *Statistical analysis, Frequency distribution, Mean, Standard deviation, Disc-drum units = one, Computers terminals = one.

Availability: NTIS, CP **T05**, mag tape. All prices cited are for the North American Continent ONLY, all others write for quote. Source tape is in EBCDIC character set. Tape(s) can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Price includes documentation.

PB-276 571/7

Multiple Linear Regression.

Software. This program fits the model Y-M(Y)=(X(1)-M(X(1)))*B(1)(X(2)-M(X(2)))*B(2)..(X(N)-M(X(N)*B(N), to a series of N discrete observations where: X(1),X(2),X(3),..,X(N) represent the independent variables; Y represents an observed data point; M(X(1)),M(X(2)),M(X(3)),..,(M(X(N)) represent the mean value of the independent variables; and (M(Y) represents the mean value of the observed data points.

Software Description: The program is written in Fortran for implementation on a UNIVAC 1100/42 under EXEC 8. Approximately 30K words of core storage are required.

Keywords: *Software, *Regression analysis, *Statistical analysis, Tape drives = one, Disc-drum units = one.

Availability: NTIS, CP **T05**, mag tape. All prices cited are for the North American Continent ONLY, all others write for quote. Source tape is in EBCDIC character set. Tape(s) can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Price includes documentation.

PB-276 572/5

Generalized Analysis of Variance.

Software. This program can be used to partition sums of squares for many types of complete block experimental designs. Sources of variation may be either (vested) or (crossed) so long as equal numbers exist in the subclasses. The user defines the design by the sources of variation. Permissible designs include the completely random, randomized complete block, N-factorial, split plots, completely nested, and various confounded and mixed designs.

Software Description: The program is written in BASIC for implementation on a UNIVAC 1100/42 under EXEC 8. Approximately 18K words of core storage are required.

Keywords: *Software, *Analysis of variance, *Experimental design, Block design, Disc-drum units = one, Computers terminals = one.

Availability: NTIS, CP **T05**, mag tape. All prices cited are for the North American Continent ONLY, all others write for quote. Source tape is in EBCDIC character set. Tape(s) can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Price includes documentation.

PB-276 573/3

Compute Roots and Relative Maximums and Minimums.

Software. This program will locate the roots and relative maximums and minimums for any function of X by checking a finite number of points, equally spaced with a given interval, for a change in sign of f(X) or its derivative.
Software Description: The program is written in the BASIC programming language for implementation on a UNIVAC 1100/42 computer using the EXEC 8 operating system. The computer memory requirement is 20K.

Keywords: *Software, *Roots of equations, Computation.

Availability: NTIS, CP **T05**, mag tape. Source tape is in EBCDIC character set. Identify recording mode desired. Price includes documentation.

PB-276 575/8

Linear Programming Computation.

Software. This program computes the optimum solutions for linear programming problems. A linear objective function is maximized (or minimized) subject to a set of linear constraints.
Software Description: The program is written in the FORTRAN programming language for implementation on a UNIVAC 1100/42 computer using the EXEC 8 version 32-R-2 operating system. The computer memory requirement is 30K.

Keywords: *Software, *Linear programming, Constraints, Optimization.

Availability: NTIS, CP **T05**, mag tape. Source tape is in EBCDIC character set. Identify recording mode desired. Price includes documentation.

PB-276 576/6

Least Squares Orthogonal Poly Fit.

Software. This program fits least-square polynomials to bivariate data, using an orthogonal polynomial method. Limits are 11th degree fit and a maximum of 100 data points. Program allows user to specify the lowest degree polynomial to be fit, and then fits the polynomials in order of ascending degree. At each stage, the index of determination is printed, and the user has the choice of going to the next higher degree fit, seeing either of two summaries of fit at that stage, or of stopping the program. Note that this program may produce invalid results beyond the fifth degree fit.
Software Description: The program is written in the BASIC programming language for implementation on a UNIVAC 1108/42 computer using the EXEC 8 version 32-R-2 operating system. The computer memory requirement is 12K.

Keywords: *Software, *Bivariate analysis, *Least squares method, Polynomials, Curve fitting, *Regression analysis.

Availability: NTIS, CP **T05**, mag tape. Source tape is in EBCDIC character set. Identify recording mode desired. Price includes documentation.

PB-276 750/7

SAAM27, Simulation, Modeling and Data Fitting Program for UNIVAC.

Models-simulation. SAAM is a computer program designed as a tool for the study and testing of mathematical models. Although designed originally for the modeling of biological systems any set of mathematical equations (differential, integral or algebraic) or functions may serve as a model provided an analytical or numerical procedure exists for its solution. A library of model types, including ordinary nonlinear differential equations, is incorporated within the program for routine use. The program uses a common data input format for all model types. This is made possible through the use of a single set of computational parameters and variables in the program. The number of entries required to specify a model and its constraints has been minimized to simplify use. Considerable effort was made to develop a simple correspondence between biological systems, experimental techniques and the SAAM simulation language. In routine use an absolute version of SAAM is maintained on drum, disc or tape and brought in for execution through job control cards. A 'run' consists of the job control cards needed for job execution, problem deck(s) and any card needed for job termination. Each problem deck is self-contained in that it has all the information necessary to proceed with execution by SAAM.
Software Description: The program was compiled from source in Fortran IV with some assembly language subprograms for a UNIVAC 1108 computer. Approximately 64K words of core are required.
Related documentation: PB-276 751/5.

Keywords: *Models-simulation, Computer programming, *Computerized simulation, *Mathematical models, Programming manuals, Nonlinear differential equations, Digital computers, Magnetic tapes, Fortran, SAAM computer program, *SAAM27 computer program, Biological models.

Availability: NTIS, CP **T04**, mag tape*. Source tape is in FIELDATA character set. Identify recording mode. Call NTIS Computer Products if you have questions. Price includes documentation.

PB-277 248/1

SAAM27, Simulation, Modeling and Data Fitting Program for IBM.

Models-simulation. SAAM is a computer program designed as a tool for the study and testing of mathematical models. Although designed originally for the modeling of biological systems any set of mathematical equations (differential, integral or algebraic) or functions may serve as a model provided an analytical or numerical procedure exists for its solution. A

library of model types, including ordinary non-linear differential equations, is incorporated within the program for routine use. The program uses a common data input format for all model types. This is made possible through the use of a single set of computational parameters and variables in the program. The number of entries required to specify a model and its constraints has been minimized to simplify use. Considerable effort was made to develop a simple correspondence between biological systems, experimental techniques and the SAAM simulation language. In routine use an absolute version of SAAM is maintained on drum, disc or tape and brought in for execution through job control cards. A run consists of the job control cards needed for job execution, problem deck(s) and any card needed for job termination. Each problem deck is self-contained in that it has all the information necessary to proceed with execution by SAAM.

Software Description: The program is written in Fortran and ALC for implementation on IBM 370 computers under OS MVT. 246K bytes of core storage are required.

Related documentation: PB-276 751/5.

Keywords: *Models-simulation, Magnetic tapes, *Mathematical models, Computerized simulation, SAAM computer program, Biological models.

Availability: NTIS, CP **T04**, mag tape. Source tape is in BINARY character set. Character set restricts preparation to 9 track one-half inch tape only. Identify recording mode by specifying density only. Call NTIS Computer Products, if you have questions. Price includes documentation.

PB-285 756/3

Table Producing Language (TPL), Version 4.0.

Software. A national statistical agency such as the Bureau of Labor Statistics usually produces the results of its surveys in tabular form at the cost of a substantial portion of its data processing resources. The tables are often quite complex with common requirements for cross tabulation of irregular patterns of hierarchical data files with many intermediate levels of summarization, percentage distributions, measures of statistical precision, and intricate publication formats. The Table Producing Language (TPL) has been designed and implemented as a general tool for producing statistical tables. The syntax of the language allows the user to construct expressions representing the desired tables and auxiliary operations. The expressions are problem oriented, nonprocedural, compact, and written with English-like nomenclature. Together with a Codebook, they allow the specification of complex data reduction, cross tabulation, and table generation operations. Users may be research economists, statisticians and other social scientists who need not have experience with conventional computer programming languages, as well as computer oriented staff concerned with production tasks.

Software Description: The program is written in the TPL programming language for implementation on an IBM 360/370 computer using the OS MFT, MVT, VS1, or MVS operating system. Computer memory requirement is 250K.

Related documentation: PB-281 377, PB-281 378, PB-281 379, PB-285 757.

Keywords: *Software, *Statistical analysis, *Tabulation processes, Data reduction, Syntax, Magnetic tapes, Tables(Data), *TPL programming language.

Availability: NTIS, CP **T05**, 1 reel mag tape. Source tape is in EBCIDIC character set. Character set restricts preparation to 9 track one-half inch tape only. Identify recording mode by specifying density only. Call NTIS Computer Products if you have questions. Price includes documentation.

PB-290 474/6

NMGS2, a Multiple Regression Program.

For complete citation, see 7 **Computer Sciences.**

PB-293 667/2

Simpson's Rule Integration.

For complete citation, see 7 **Computer Sciences.**

PB80-133002

CENTS-AID 2.6.

Software. CENTS-AID II is a high-speed cross-tabulation system that enables a researcher to examine and display simple frequency counts and complex cross-tabulation of up to 8-dimensions. Data stored in the following formats is accepted; BCD, EBCDIC, Binary and Packed Decimal. Variable length and hierarchical data files can be processed. There are virtually no limitations to the number of frequency counts and tables that can be processed in a single run. Includes a powerful retrieval language and a full set of data transformation and recode capabilities that can be directed at any table or set of tables requested. System automatically formats row and column headings using the descriptive labels of variables and values provided by the user. User has optional control over the formatting of tables and can specify unique column and row labels for each variable included in a table. Available on tape with a Programmer's Notebook, User's Manual, and a full year of free maintenance.

Software Description: The program is written in the American National Standard COBOL (ANS-COBOL) and has been compiled and tested using NASV3 and ANSV4 of the compiler. The system is fully operational on the IBM 360/370 /3033 operating under os/MVS/MVT/VS and well as, DOS-VS. Minimum core storage requirement is 168K bytes.

Related documentation: PB80-133028, PB80-133010.

Keywords: *Software, *Tabulation processes, *Statistical analysis, Data processing, Computer programming, Tables(Data), Computer systems software, Magnetic tapes, Frequency distribution.

Availability: NTIS, Mag Tape $900.00, mag tape. Source tape is in EBCDIC character set. Tapes can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired. Call NTIS Computer Products if you have questions. Price includes documentation.

14. MUNICIPAL INFORMATION SYSTEMS

PB-240 373/1

USAC Treasury Management Municipal COBOL Computer Program Module Magnetic Tape.

Software. This tape contains the USAC Municipal Treasury Management Module for the Dayton, Ohio, Integrated Municipal Information System (IMIS). The Treasury Management component is designed to record current municipal cash flow information, project the city's short term cash flow, and assist in regulating the city's investment program to obtain the maximum return with minimal risk. There are 11 COBOL programs recorded on the tape. 65,536 bytes of core storage, 64 million bytes of disk storage and 3 tape drives are needed to operate this module on the NCR Century-200.
Software description: These programs are written in the COBOL programming language for implementation on an NCR Century-200 computer using the NCR B1 operarating system, release 8B. The teleprocessing package is NCR B2 release 8B.
Related documentation: PB-222 968/0, PB-241 560, PB-241 650, PB-241 651, PB-242 037.

Keywords: *Software, *Local government, *Urban information systems, *Cash flow, Financial management, Management information systems, Magnetic tapes, Computer programming, COBOL, Ohio, USAC project, *Dayton(Ohio).

Availability: NTIS, CP **T04,** 1 reel mag tape. Specify tape recording mode desired: 9 track, 800 or 1600bpi, odd parity, Ebcdic; or 7 track, 556 or 800bpi, odd or even parity, Bcd. Price includes documentation.

PB-240 374/9

USAC Purchasing Municipal COBOL Computer Program Magnetic Tape.

Software. This tape contains the USAC Municipal Purchasing Module for the Dayton, Ohio, Integrated Municipal Information System (IMIS). The purpose of the purchasing component is to process encumbrance documents, maintain a file of open encumbrances, and generate encumbrance transactions for the accounting disbursing component. There are 3 programs recorded on the tape. 65,536 bytes of core, 64 million bytes of disk storage and 3 tape drives are needed to operate this module on the NCR Century-200 Computer.
Software description: The programs are written in the Cobol Programming Language for implementation on an NCR Century-200 computer using the NCR B1 operating system (release 8B). The teleprocessing system is NCR B2 (Release 8B).
Related documentation: PB-236 918/9, PB-238 918, PB-241 557, PB-241 558, PB-241 559.

Keywords: *Software, *Local government, *Urban information systems, *Purchasing, Management information systems, Magnetic tapes, Computer programming, COBOL, Ohio, Accounting, USAC project, *Dayton(Ohio)..

Availability: NTIS, CP **T04,** 1 reel mag tape. Specify tape recording mode desired: 9 track, 800 or 1600 bpi, odd parity, EBCDIC; or 7 track, 556 or 800 bpi, odd or even parity, BCD. Price includes documentation.

PB-240 375/6

USAC Payroll/Personnel Municipal COBOL Computer Program Module Magnetic Tape.

Software. This tape contains the USAC Municipal Payroll/Personnel Module for the Dayton, Ohio, Integrated Municipal Information System (IMIS). The purpose of the payroll/personnel module is to collect information from departments and maintain a comprehensive and accurate data base required to produce the city's payroll at minimum cost, supply management with information periodically and on demand, and to offer ready access to selected personal history facts. It supplies timely and accurate information necessary for making effective management decisions, producing the payroll, and keeping personnel records current. There are 62 programs recorded on the tape. Technical documentation describing this module include: PB-221 954, Payroll/Personnel Systems Design; PB-241 649, Systems Development and Implementation; PB-241 652, Payroll.personnel component, USER's manual; PB-241 653, Payroll/personnel component, input/output manual; PB-241 654, Payroll/personnel component operations manual. 65,536 bytes s of core storage, 64 million bytes of disk storage and 3 tape drives are needed to operate this module on the NCR Century-200 computer.
Software description: These programs are written in the NCR Cobol Stage II Programming Language for implementation on an NCR Century-200 computer using the NCR B1 operating system, release B8. The teleprocessing package is NCR B2, release B8.
Related documentation: PB-221 954/1, PB-241 649, PB-241 652, PB-241 653, PB-241 654.

Keywords: *Software, *Local government, Urban information systems, *Salaries, Management information systems, Magnetic tapes, Computer programming, COBOL, Ohio, Payrolls, Personnel management, Records management, USAC project, *Dayton(Ohio).

Availability: NTIS, CP **T04,** 1 reel mag tape. Specify tape recording mode desired: 9 track, 800 or 1600bpi, odd parity, Ebcdic; or 7 track, 556 or 800bpi, odd or even parity, BCD. Price includes documentation.

PB-240 376/4

USAC Resource Management Municipal COBOL Computer Program Module Magnetic Tape.

Software. This tape contains the USAC Municipal Resource Management Module for the Dayton, Ohio Integrated Municipal Information System (IMIS). The purpose of this module is to provide cost data for the evaluation of personnel management alternatives, predominantly in the areas of labor relations management and budget formulation. This cost data includes historical, current, and forecasted personnel wage, fringe benefit, and non-productive time information. There are 11 programs recorded on the tape. 65,536 bytes of core, 64 million bytes of disk storage and 3 tape drives are required to operate this module on the NCR Century-200 computer.
Software description: The programs are written in the NCR Col Stage III Programming Language for implementation on an NCR Century-200 computer

using the NCR B1 operating system release 8B. The teleprocessing system is NCR B2 release 8B.
Related documentation: PB-221 954/1, PB-236 919/7, PB-241 622, PB-241 633, PB-241 664.

Keywords: *Software, *Local government, Urban information systems, *Personnel management, Management information systems, Magnetic tapes, Computer programming, COBOL, Ohio, Labor relations, Budgeting, USAC project, *Dayton(Ohio).

Availability: NTIS, CP **T04**, 1 reel mag tape. Specify tape recording mode desired: 9 track, 800 or 1600 bpi, odd parity, EBCDIC; or 7 track, 556 or 800 bpi, odd or even parity, BCD. Price includes documentation.

PB-240 377/2

USAC General Revenue Municipal COBOL Computer Program Module Magnetic Tape.

Software. This tape contains the USAC Municipal General Revenue Module for the Dayton, Ohio Integrated Municipal Information System (IMIS). The General Revenue Module is designed to account for all revenues received by the city of Dayton and to maintain a general accounts receivable system. Invoices issued by the city are used to establish the receivable accounts while pay in documents are used to credit the accounts. A customer master file is maintained. Reports include various aging analyses, detailed activity reports by customer, summary statistical reports, and batch control reports. There are 18 programs recorded on the tape. 65,536 bytes of core storage, 64 million bytes of disk storage and 3 tape drives are needed to operate this module on the NCR Century-200 computer.
Software description: These programs are written in the NCR Cobol Stage III programming languate for implementation on the NCR Century-200 computer using the NCR B1 operating system, release 8B. The teleprocessing package is NCR B2, Release 8B.
Related documentation: PB-241 160, PB-241 660, PB-241 661, PB-241 690.

Keywords: *Software, *Local government, Urban information systems, *Revenue, Management information systems, Magnetic tapes, Computer programming, COBOL, Ohio, Accounting, USAC project, *Dayton(Ohio).

Availability: NTIS, CP **T04**, 1 reel mag tape. Specify tape recording mode desired: 9 track, 800 or 1600 bpi, odd parity, EBCDIC; or 7 track, 556 or 800 bpi, odd or even parity, BCD. Price includes documentation.

PB-240 378/0

USAC Utility Billing COBOL Computer Program Module Magnetic Tape.

Software. This tape contains the USAC Municipal Utility Billing Module for the Dayton, Ohio Integrated Municipal Module and is designed to assist in the collection of monies in compensation for water and sewer services. The module issues utility bills, posts payments and refunds, controls delinquent accounts, and assists in the handling of customer service requests. There are 16 programs recorded on the tape requests. 65,536 bytes of core storage, 64 million bytes of disk storage and 3 tape drives are needed to operate this module on an NCR Century-200 computer.
Software description: These programs are written in the NCR COBOL Stage III Programming Language for implementation on an NCR Century-200 computer using the NCR B1 operating system release 8B. The teleprocessing package is NCR B2, release 8B.
Related documentation: PB-236 918/9, PB-241 568, PB-241 659, PB-241 696.

Keywords: *Software, *Local government, Urban information systems, *Billing, Management information systems, Magnetic tapes, Computer programming, COBOL, Ohio, Utilities, USAC project, *Dayton(Ohio).

Availability: NTIS, CP **T04**, 1 reel mag tape. Specify tape recording mode desired: 9 track, 800 or 1600 bpi, odd parity, EBCDIC; or 7 track, 556 or 800 bpi, odd or even parity, BCD. Price includes documentation.

PB-240 379/8

USAC Accounting/Disbursing Municipal COBOL Computer Program Module Magnetic Tape.

Software. This tape contains the USAC Municipal Accounting/Disbursing module for the Dayton, Ohio, Integrated Municipal Information System (IMIS). The Accounting/Disbursing Module is a General Accounting System for Municipal Governments. It maintains a general ledger as well as various subsidiary revenue and expenditure ledgers. Expenditure control is exerted through line appropriations as well as through an encumbrance procedure. Expenditure data are maintained at a PPBS level as well as at the appropriated line account level. There are 25 programs recorded on the tape. 65,536 bytes of core storage, 64 million bytes of disk storage and 3 tape drives are needed to operate this module on the NCR Century-200 computer.
Software description: These programs are written in the NCR Cobol Stage III Programming Language for implementation on an NCR Century-200 Computer using the NCR B1 operating system, release 8B. The teleprocessing package is NCR B2, release 8B.
Related documentation: PB-231 183/5, PB-241 655, PB-241 656, PB-241 657.

Keywords: *Software, *Local government, Urban information systems, *Financial management, Computer programming, Magnetic tapes, Management information systems, COBOL, Accounting, Ohio, USAC project, *Dayton(Ohio).

Availability: NTIS, CP **T04**, 1 reel mag tape. Specify tape recording mode desired: 9 track, 800 or 1600 bpi, odd parity, EBCDIC; or 7 track, 556 or 800 bpi, odd or even parity, BCD. Price includes documentation.

PB-240 380/6

System Level Software Municipal COBOL Computer Programs Module Technical Tape.

Software. This tape contains the USAC Municipal System Level Software Module for the Charlotte, N.C. Integrated Municipal Information System (IMIS). The module provides a vehicle by which various applications modules may interact with on-line terminals and data bases utilizing the capabilities of the Burroughs B2761 Computer System. The system level software provides capabilities to allow the police system to interface with the city's main com-

puter system. 60K Bytes of Core Storage and 5 Million Bytes of Disk Storage are needed to operate these programs.

Software Description: These programs are written in a variety of programming languages, the network-definition language (2.7) which is a macro language using COBOL and assembler constructs, the file-organization techniques (1-1) which is a macro language using COBOL constructs, and finally the Burroughs 2700 COBOL language, version 5.4. All programs are written to operate under the Burroughs 2761-MCPV 5.4 operating system. The teleprocessing package is Burroughs Network Definition Language 2.7.

Related documentation: PB-241 617/0, PB-240 165/1, PB-243 451.

Keywords: *Software, *Local government, Urban information systems, Data processing, Management information systems, Magnetic tapes, Computer programming, COBOL, North Carolina, Police, Data files, USAC project, *Charlotte(North Carolina), On line systems.

Availability: NTIS, CP **T04**, 1 reel mag tape. Specify tape recording mode desired: 9 track, 800 bpi, odd parity, EBCDIC; or 9 track, 1600 bpi, odd parity, EBCDIC. Price includes documentation.

PB-240 381/4

Police Field Assignments Municipal COBOL Computer Programs Module Technical Tape.

Software. This tape contains the USAC Municipal Field Assignments Module for Charlotte, N.C., Integrated Municipal Information System (IMIS). The purpose of the police field assignments module is to provide for the collection and dissemination of information on calls for service and police field units in order to aid the Police Department in dispatching units to assist citizens in a timely and efficient manner. To operate these programs on the Burroughs 2761 Computer, 120K Bytes of core storage, 12 Million Bytes of Disk Storage, and 1 tape drive is needed while on the UNIVAC 70/45-2 Computer, 270K Bytes of core storage and 22 million Bytes of Disk Storage are needed.

Software Description: These programs are written in the Cobol programming language for implementation on a Burroughs 2761 and a UNIVAC 70/45-2 Computer. The operating system for the Burroughs System is Burroughs 2761-MCVP 5.4; for the UNIVAC system it is the UNIVAC TDOS 21.18. The teleprocessing packages are, the Burroughs Network Definition Language 2.7, and the UNIVAC IPSTCP 14.

Related documentation: PB-241 452/2, PB-240 166/9, PB-241 611/3, PB-240 165, PB-243 451.

Keywords: *Software, *Local government, Urban information systems, *Police, Services, Management information systems, Magnetic tapes, Computer programming, COBOL, North Carolina, USAC project, *Charlotte(North Carolina).

Availability: NTIS, CP **T04**, 1 reel mag tape. Specify tape recording mode desired: 9 track, 800 bpi, odd parity, EBCDIC; or 9 track, 1600 bpi, odd parity, EBCDIC. Price includes documentation.

PB-240 382/2

Relocation Services Municipal COBOL Computer Programs Module Technical Tape.

Software. This tape contains the USAC Municipal Relocation Services Module for the Charlotte, N.C. Integrated Municipal Information System (IMIS). The relocation services module has been developed to facilitate the relocation of active displacee clients of the city's Redevelopment Commission. 270K Bytes of core storage and 2.5 million bytes of disk storage are needed to operate this module on the UNIVAC 70/45-2 computer. There are 16 programs recorded on the tape.

Software Description: These programs are written in the COBOL programming language for implementation on a UNIVAC 70/45-2 Computer using the UNIVAC TDOS 21.18 operating system. The teleprocessing package is the UNIVAC IPSTCP 14. The Data Base Management System Software Package is UNIVAC IPSDCP 1.0.

Related documentation: PB-242 090/9, PB-242 896/9, PB-241 162/7.

Keywords: *Software, *Local government, Urban information systems, *Relocation, *Urban relocation, Management information systems, Magnetic tapes, Computer programming, COBOL, North Carolina, Urban renewal, USAC project, *Charlotte(North Carolina).

Availability: NTIS, CP **T04**, 1 reel mag tape. Specify tape recording mode desired: 9 track, 800 bpi, odd parity, EBCDIC; or 9 track, 1600 bpi, odd parity, EBCDIC. Price includes documentation.

PB-240 383/0

Fire Operations Municipal COBOL Computer Programs Module Technical Tape.

Software. This tape contains the USAC Municipal Fire Operations Module for the Charlotte, N.C. Integrated Municipal Information System (IMIS). The Fire Operations Module provides for the on-line storage and retrieval of inspection data, fire fighting plans and related municipal information required for the application of appropriate fire fighting or rescue tactics. There are 6 programs recorded on the tape. 270K Bytes of Core Storage and 20 million bytes of disk storage are needed to operate this module on the UNIVAC 70/45-2 Computer.

Software description: These programs are written in the UNIVAC series to COBOL programming language for implementation on a UNIVAC 70/45-2 Computer using the TDOS 21.18 operating system. The teleprocessing packe is UNIVAC IPSTCP 14. The data base management system software package is UNIVAC IPSDCP 1.0.

Related documentation: PB-233 588/3, PB-227 712/7, PB-243 450, PB-236 886.

Keywords: *Software, *Local government, Urban information systems, Fire safety, *Fire fighting, Management information systems, Magnetic tapes, Computer programming, COBOL, North Carolina, Data storage, Data retrieval, USAC project, *Charlotte(North Carolina).

Availability: NTIS, CP **T04**, 1 reel mag tape. Specify tape recording mode desired: 9 track, 800bpi, odd parity, Ebcdic; or 9 track, 1600bpi, odd parity, Ebcdic. Price includes documentation.

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PB-240 489/5

Landfill Control Municipal COBOL Computer Programs Module Technical Tape.

Software. This tape contains the USAC Municipal Landfill Control Module for the Charlotte, N.C. Integrated Municipal Information System (IMIS). This module provides public works administrators with an efficient mechanism for the planning and control of solid waste disposal activities, specifically the recording of detailed information on landfill use and the nature and amount of refuse received from domestic, commercial and industrial sources within the municipality. There are 3 programs recorded on the tape.
Software Description: These programs are written in the UNIVAC Series 70 COBOL programming language for implemementation on a UNIVAC 70/45-2 Computer using the UNIVAC TDOS 21.1 8 operating system. The teleprocessing package is UNIVAC IPSTCP 14. The Data Base Management System is UNIVAC IPSDCP 1.0.
Related documentation: PB-227 685/5, PB-227 679/8, PB-224 989, PB-227 669.

Keywords: *Software, *Local government, Urban information systems, *Solid waste disposal, Management information systems, Magnetic tapes, Computer programming, COBOL, North Carolina, Earth fills, USAC project, *Charlotte(North Carolina).

Availability: NTIS, CP **T04**, 1 reel mag tape. Specify tape recording mode desired: 9 track, 800 bpi, odd parity, EBCDIC; or 9 track, 1600 bpi, odd parity, EBCDIC. Price includes documentation.

PB-240 490/3

Traffic Control Device Inventory Municipal COBOL Computer Programs Module Technical Tape.

Software. This tape contains the USAC Municipal Traffic Control Device Inventory Module for the Charlotte, N.C., Integrated Municipal Information System (IMIS). This module provides municipal government with a system for maintaining an inventory, by location, of all traffic control devices and pavement markings within the municipality. There are 6 programs recorded on the tape.
Publications: PB-239 459/1, Traffic Control Device Inventory Module Design Specification; PB-242 088, Traffic Control device Inventory Module Computer Program Descriptions; PB-242 039, Traffic Control Device Inventory User's Manual. 270K Bytes of core storage and 79,200 Bytes of disk storage are needed to operate this module on a UNIVAC 70/45-2 Computer.
Software description: These programs are written in the UNIVAC Series 70 COBOL programming language for implementation on a UNIVAC 70/45-2 Computer using the UNIVAC TDOS 21.18 operating system. The teleprocessing package is UNIVAC IPSTCP 14. The Data Base Management System is UNIVAC IPSDCP 1.0.
Related documentation: PB-239 459/1, PB-242 088/3, PB-242 039.

Keywords: *Software, *Local government, Urban information systems, *Vehicular traffic control, Management information systems, Magnetic tapes, Computer programming, COBOL, North Carolina, Pavements, Marking, USAC project, *Charlotte(North Carolina).

Availability: NTIS, CP **T04**, 1 reel mag tape. Specify tape recording mode desired: 9 track, 800 bpi, odd parity, EBCDIC; or 9 track, 1600 bpi, odd parity, EBCDIC. Price includes documentation.

PB-240 531/4

Geographic Data Index Maintenance Municipal COBOL Computer Programs Module Technical Tape.

Software. This tape contains the USAC Municipal Geographic Data Index Maintenance (GDIM) Module for the Charlotte, N.C., Integrated Municipal Information System (IMIS). This module provides for the updating and maintenance activities relative to the Geographic Base Files (GBF) and indices supporting the Charlotte IMIS. The basic information provided by the GBF includes Census Tract and Block numbers, street names, street address ranges, street directions, street types, and non-street features such as railroads, creeks, parks, etc. There are 9 programs recorded on the tape. 270K bytes of core storage and 12 million bytes of disk storage are needed to operate this module on a UNIVAC 70/45-2 Computer.
Software description: These programs are written in the FORTRAN 4 and UNIVAC Series 70 COBOL. They were written for implementation on a UNIVAC 70/45-2 Computer using the UNIVAC TDOS 21.1 8 operating system. The teleprocessing package is UNIVAC IPSTCP 14. The Data Base Management System Software package is UNIVAC IPSDCP 1.0.
Related documentation: PB-241 618/8, PB-239 533/3, PB-241 449.

Keywords: *Software, *Local government, *Urban information systems, Data processing, Management information systems, Magnetic tapes, Computer programming, COBOL, North Carolina, USAC project, *Charlotte(North Carolina), Geocoding.

Availability: NTIS, CP **T03**, 1 reel mag tape. Specify tape recording mode desired: 9 track, 800 bpi, odd parity, EBCDIC; or 9 track, 1600 bpi, odd parity, EBCDIC. Price includes documentation.

PB-242 173/3

Reading USAC Project: Parts and Supplies Inventory COBOL Program, Release Number One.

Software. The purpose of the Parts and Supplies Inventory Module is to collect information from departments and to maintain a comprehensive parts and supplies inventory at minimum cost, to supply management with information periodically and on demand, and to offer ready access to selected bureau inventory facts. It supplies timely and accurate information necessary for making effective management decisions and for producing and keeping the inventory current. There are 4 programs recorded on the tape. 32K bytes of core storage and 32 M bytes of disk storage are required to operate this module on a UNIVAC 9300 Model II computer.
Software Description: The programs are written in UNIVAC 9300 Model II COBOL programming language for implementation on a UNIVAC 9300 Model II computer using the UNIVAC NCOS operating system, revision 4.0 0S500. The data base manage-

ment system is Reading DMT version 1, release 1, level 1.
Related documentation: PB-238 265/3, PB-239 457/5, PB-243 706/4.

Keywords: *Software, *Local government, *Urban information systems, *Spare parts, Supply management, Inventory control, Magnetic tapes, COBOL, Management information systems, Decision making, Cost minimization, Computer programs, Pennsylvania, Data acquisition, *Reading(Pennsylvania), USAC project.

Availability: NTIS, CP **T04**, 1 reel mag tape. Specify tape recording mode desired: 9 track, 800 or 1600 bpi, odd parity, EBCDIC; or 7 track, 556 or 800 bpi, odd or even parity, BCD. Price includes documentation.

PB-242 319/2

Reading USAC Project: Standard Permit Processing COBOL Computer Program Module, Release Number One.

Software. This tape contains the USAC Municipal Standard Permit Processing Module for the Reading Pennsylvania Integrated Municipal Information System (IMIS). This module regulates the processing of permits, inspections, appeal procedures and reports by enhancing the reporting capabilities of the code services bureau. It also provides data regarding change in property value to the property assessment module. There are five programs recorded on the tape. 32K bytes of core storage and 32M bytes of disk storage are required to operate this module on a UNIVAC 9300 Model II computer.
Software Description: These programs are written in UNIVAC 9300 Model II COBOL programming language for implementation on a UNIVAC 9300 Model II computer using UNIVAC OS500 DNCOS revision 4 operating system. The data base management system is Reading DMT Version 1, Release 1, Level 1.
Related documentation: PB-238 264, PB-241 443, PB-251 850.

Keywords: *Software, *Local government, *Urban information systems, *Licenses, Processing, Magnetic tapes, COBOL, Computer programs, Inspection, Litigation, Property values, Assessments, Pennsylvania, Building permits, *Reading(Pennsylvania), Appeals, USAC project, Integrated municipal information systems.

Availability: NTIS, CP **T04**, 1 reel mag tape. Specify tape recording mode desired: 9 track, 800 or 1600 bpi, odd parity, EBCDIC; or 7 track, 556 or 800 bpi, odd or even parity, BCD. Price includes documentation.

PB-242 407/5

Reading USAC Project: Sewer and Water Accounts Processing Computer Program, Release Number One.

Software. This tape contains the USAC Municipal Sewer and Water Accounts Processing (SWAP) Module for the Reading, Pennsylvania, Integrated Municipal Information System (IMIS). This Module maintains records for 29,000 water and sewer customers, post meter readings and calculate periodic consumption, produce water and sewer bills, post bill payments, and provide reports to the users of the system. There are 11 programs recorded on the tape. 32K bytes of core storage and 32M bytes of disk storage are needed to operate this module on a UNIVAC Model 9300 II computer.
Software Description: These programs are written in COBOL for implementation on a UNIVAC Model 9300 II computer using the UNIVAC 0S500 NCOS Rev. 4 operating system. The Data Base Management System is the Reading DMT Version 1, Release 1, Level 1.
Related documentation: PB-236 976/7, PB-247 661, PB-251 898.

Keywords: *Software, *Local government, *Urban information systems, *Water supply, Sewer systems, Consumers, Records management, Billing, Magnetic tapes, Computer programs, Data acquisition, Reporting methods, Pennsylvania, COBOL, Management information systems, Accounting, *Reading(Pennsylvania), USAC project, Integrated municipal information systems.

Availability: NTIS, CP **T04**, 1 reel mag tape. Specify tape recording mode desired: 9 track, 800 or 1600 bpi; odd parity, EBCDIC; or 7 track, 556 or 800 bpi, odd or even parity, BCD. Price includes documentation.

PB-242 408/3

Reading USAC Project: VEHICLE MANAGEMENT Computer Program Module, Release Number One.

Software. This tape contains the USAC Municipal Vehicle Management Module for the Reading, Pennsylvania, Integrated Municipal Information System (IMIS). The programs included on this tape produce from input cards a fuel consumption report. The cards are edited and then used as input to the program that produces a report by vehicle within Bureau showing fuel consumed during the reporting period. Totals are produced by vehicle by Bureau, and by fuel distribution point. There are 2 programs recorded on the tape. 32K bytes of core storage are needed to operate this module on a UNIVAC Model 9300 II computer.
Software description: These programs are written in COBOL for implementation on a UNIVAC Model 9300 II computer using the UNIVAC 0S500 DNCOS revision 4 operating systems. The Data Base Management System is the Reading DMT Version 1, Release 1, Level 1.
Related documentation: PB-239 389/0, PB-242 038/8.

Keywords: *Software, *Local government, *Urban information systems, *Vehicles, Management information systems, Magnetic tapes, COBOL, Fuel consumption, Computer programs, Urban planning, Pennsylvania, *Reading(Pennsylvania), USAC project, Integrated municipal information systems.

Availability: NTIS, CP **T04**, 1 reel mag tape. Specify tape recording mode desired: 9 track, 800 or 1600 bpi, odd parity, EBCDIC; or 7 track, 556 or 800 bpi, odd or even parity, BCD. Price includes documentation.

PB-242 409/1

Reading USAC Project: GEOGRAPHIC BASE MAINTENANCE Computer Program Module, Release Number One.

Software. This tape contains the USAC Municipal Geographic Base Maintenance Module for the Reading, Pennsylvania Integrated Municipal Information

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System (IMIS). This module allows property oriented data to be aggregated by area or network. There are 9 programs recorded on the tape. 32K bytes of core storage and 32M bytes of disk storage are needed to operate this module on a UNIVAC Model 9300 II computer.
Software Description: These programs are written in COBOL for implementation on a UNIVAC Model 9300 II computer using the UNIVAC 0S500 DNCOS Rev. 4 operating system. The Data Base Management system is the Reading DMT Version 1, Release 1, Level 1.
Related documentation: PB-237 256/3, PB-247 674, PB-251 310.

Keywords: *Software, *Local government, *Urban information systems, *Property management, Management information systems, Magnetic tapes, Urban planning, Technology transfer, Computer programs, COBOL, Economic development, Pennsylvania, *Ownership, Geographic base files, *Reading(Pennsylvania), USAC project, Integrated municipal information systems.

Availability: NTIS, CP **T04**, 1 reel mag tape. Specify tape recording mode desired: 9 track, 800 or 1600 bpi, odd parity, EBCDIC; or 7 track, 556 or 800 bpi, odd or even parity, BCD. Price includes documentation.

PB-242 410/9

Reading USAC Project: Property Assessment/ Maintenance of Ownership Computer Program Module, Release Number One.

Software. The ownership module provides timely property ownership data which can service all city billing and property owner notification activities. The Property Assessment module secures assessment data from county assessments, maintains assessments for the 28,000 properties within the city of Reading and provides assessment activity reports to the necessary city bureaus. There are 6 programs recorded on the tape. 32K bytes of core storage and 32M bytes of disk storage are needed to operate this module on a UNIVAC Model 9300 II computer.
Software Description: These programs are written in COBOL for implementation on a UNIVAC Model 9300 II computer using the UNIVAC 0S500 DNCOS Rev. 4 operating system. The Data Base Management System is the Reading DMT Version 1, Release 1, Level 1.
Related documentation: PB-240 162/8, PB-241 161/9, PB-239 390/8, PB-236 975/9.

Keywords: *Software, *Urban information systems, *Local government, *Property management, Urban planning, Computer programs, Management information systems, Property values, Magnetic tapes, COBOL, Economic development, Pennsylvania, Assessments, *Ownership, *Reading(Pennsylvania), USAC project, Integrated municipal information systems.

Availability: NTIS, CP **T04**, 1 reel mag tape. Specify tape recording mode desired: 9 track, 800 or 1600bpi, odd parity, Ebcdic; or 7 track, 556 or 800bpi, odd or even parity, Bcd. Price includes documentation.

PB-242 761/5

Building Permits Processing Municipal Cobol Computer Programs Module Technical Tape.

Software. This tape contains the USAC Municipal Building Permits Processing Module for the Charlotte, N.C. Integrated Municipal Information system (IMIS). This module provides for on-line storage, maintenance, and retrieval of data which is relative to all types of permits issued by the Building Inspection Department. On-line storage is facilitated by four interactive displays, two of which are the primary source for address and permit application information. Card input is used as the primary source for all types of inspection reports. There are 16 programs recorded on the tape. 270 K bytes of core storage and 18 M bytes of disk storage are needed to operate this module on the UNIVAC 70/45-2 computer.
Software Description: These programs are written in UNIVAC series 70 Cobol language for implementation on UNIVAC Spectra 70/45-2 computer using the UNIVAC TDOS 21.1 operating system.
Related documentation: PB-238 564, PB-239 460, PB-240 161.

Keywords: *Software, *Urban information systems, *Building permits, *Local government, Building codes, Computer programming, Information retrieval, Management information systems, Data processing, North Carolina, Magnetic tapes, USAC project, *Charlotte(North Carolina).

Availability: NTIS, CP **T04**, 1 reel mag tape. Available only in 9 track, 800 or 1600 bpi, odd parity, EBCDIC. Price includes documentation.

PB-242 762/3

Personnel Operations Module Design Specification Municipal Cobol Computer Programs Module Technical Tape.

Software. This tape contains the USAC Municipal Personnel Operations Module for the Charlotte, N.C. Integrated Municipal Information System (IMIS). This module provides for the maintenance and on-line retrieval of all the types of data used by the personnel department. The information processed consists of (1) Applicant data, (2) City Employee data, (3) Employment Requisition data; (4) Budget Position data; (5) Job classifications, (6) Position interest data. The module is useful to the Personnel Department in (1) developing and maintaining a Personnel Administration system free of discriminatory practices, (2) Administering systems of recruitment, selection and placement, (3) providing comprehensive reports for management review of department activities, (4) and in maintaining and providing those records and reports needed to meet established department objectives and for adequate management control. There are 13 programs recorded on the tape.
Software description: These programs are written in the UNIVAC series 70 COBOL language for implementation on a UNIVAC SPECTRA Model 70/45-2 computer using the UNIVAC TDOS 21.1 operating system. 270 K bytes of core storage and 3.5 M bytes of disk storage are required.
Related documentation: PB-231 181, PB-234 991, PB-237 257.

Keywords: *Software, *Urban information systems, *Personnel management, *Local government, Employment, Manpower utilization, Computer programming, Information retrieval, Data processing, Management information systems, North Carolina, Magnetic tapes, USAC project, *Charlotte(North Carolina).

Availability: NTIS, CP **T04**, 1 reel mag tape. Available only in 9 track, 800 or 1600 bpi, odd parity, EBCDIC. Price includes documentation.

PB-243 298/7

Equipment Management Municipal Cobol Computer Programs Module Technical Tape.

Software. This tape contains the USAC Equipment Management Module for the Charlotte, N.C. Integrated Municipal Information System (IMIS). The Equipment Management Module is used by departments of public works, police, fire, accounting, and purchasing. The primary objective of the module is to provide a computerized system for minimizing maintenance costs and optimizing the use of equipment. Other objectives include: (1) providing a central equipment data base to be shared by users; (2) establishing a preventive maintenance program; (3) developing priority scheduling for services and repairs; (4) enhancing all levels of management by providing (a) dynamic data base displays, (b) summary reports; (5) generating management information required for (a) equipment replacement analysis, (b) budget planning, (c) planning future operations, and (d) standard performance measurements. There are 32 programs recorded on the tape. 270 K bytes of core storage and 4.4 m bytes of disk storage are needed to operate this module on a UNIVAC 70/45-2 computer.

Software description: these programs are written in UNIVAC Series 70 COBOL programming language for implementation on a UNIVAC 70/45-2 computer, using the UNIVAC TDOS 21.1 operating system.

Related documentation: PB-234 990, PB-233 587.

Keywords: *Software, *Urban information systems, Emergency vehicles, *Local government, Fire fighting vehicles, Police vehicles, Public utility vehicles, *Maintenance, Procurement, Computer programming, Information retrieval, Data processing, Management information systems, North Carolina, Magnetic tapes, *Motor vehicles, USAC project, *Charlotte(North Caroiina).

Availability: NTIS, CP **T04**, 1 reel mag tape. Available only in 9 track, 800 or 1600 bpi, odd parity, EBCDIC. Price includes documentation.

PB-243 415/7

Code Enforcement Municipal Cobol Computer Programs Module Technical Tape.

Software. This tape contains the USAC Municipal Code Enforcement Module for the Charlotte, N.C. Integrated Municipal Information System (IMIS). This module provides municipal governments with an effluent and effective method for evaluating, recording and reporting violations of state and local housing codes. The basic objectives of the module are to: (1) record and maintain a complete history of each code enforcement case, (2) establish control procedures for recording and reporting code violations, (3) provide an on-line display capability for data collection and retrieval of case history information, (4) generate management summary and statistical report reflecting case activity by street address, geographic area and employee, (5) provide key information required for reporting housing activities of municipal governments to the Federal Urban Housing Development Agency. This module provides for the storage and retrieval of data in such a way as to give the user continuity regarding each case. There are 6 programs recorded on the tape. 1.4 M bytes of core storage and 15.8 M bytes of disk storage are needed to operate this module on a Burroughs 6700 computer.

Software description: These programs are written in the Burroughs COBOL programming language for implementation on the Burroughs Model 6700 computer using the Burroughs MCP operating system, release 2.7. The teleprocessing package is the Burroughs Generalized MCS. The Data Base Management system is the Burroughs DMS II.

Related documentation: PB-242 862, PB-245 895, PB-247 660.

Keywords: *Software, *Local government, Urban information systems, *Building codes, Magnetic tapes, Building permits, Management information systems, Information retrieval, North Carolina, USAC project, *Charlotte(North Carolina).

Availability: NTIS, CP **T04**, 1 reel mag tape. Available only in 9 track, 800 or 1600 bpi, odd parity, EBCDIC. Price includes documentation.

PB-243 453/8

Reading USAC Project Data Management Technique Computer Program Module, Release No. 1.

Software. This tape contains the USAC Municipal Data Management Technique Module (DMT) for the Reading, Pennsylvania Integrated Municipal Information System (IMIS). Information on the tape includes the source code for existing root logic sets, linkage logic sets (APPLINK, SYSLINK), and all internal and integral services developed and implemented in Reading, Pennsylvania under the auspices of USAC (Urban Systems Inter-Agency Committee). In addition, two sample job control streams are offered for guidance in the development and operation of this code as a system network (Data Management Technique) in a candidate city. 32 k bytes of core storage and 32 M bytes of disk storage are needed to operate this module on a UNIVAC Model 9300 II.

Software description: These programs are written in COBOL for implementation on a UNIVAC Model 9300 II computer using the UNIVAC 0S500 DNCOS Rev. 4 operating systems. The data base management system software package is the Reading DMT, version 1, release 1, level 1.

Related documentation: PB-245 893.

Keywords: *Software, *Local government, Urban information systems, *Computer programs, Magnetic tapes, Urban technology, Information retrieval, Management information systems, Technology transfer, Pennsylvania, USAC project, *Reading(Pennsylvania).

Availability: NTIS, CP **T04**, 1 reel mag tape. Specify tape recording mode desired: 9 track, 800 or 1600 bpi, odd parity, EBCDIC; or 7 track, 556 or 800 bpi, odd or even parity, BCD. Price includes documentation.

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PB-243 456/1

Reading USAC Project Traffic Accident Recording Computer Program Module, Release No. 1.

Software. This tape contains the USAC Municipal Traffic Accident Recording Module for the Reading, Pa., Integrated Municipal Information System (IMIS). This module processes information collected on traffic accident reporting forms and assembles these data into accident history files which comprise a portion of the system data base. This information can then be retrieved to produce periodic (monthly and yearly) reports. The module also has the facility to query the accident portion of the system data base for any accidents meeting optional search parameter criteria. Its services, while available to all departments within city government, were designed around requirements supplied by the Traffic Law Enforcement Division of the Reading Bureau of Police. There are 8 programs recorded on the tape. 32K bytes of core storage and 32M bytes of disk storage are needed to operate this module on a UNIVAC Model 9300 II computer.
Software description: These programs are written in the UNIVAC 9300 II COBOL programming language for implementation on a UNIVAC Model 9300 II computer using the UNIVAC 0S500DNCOS operating system. The Reading Data Base Management System is also used to implement this module.
Related documentation: PB-237 258, PB-238 266, PB-244 374.

Keywords: *Software, *Local government, Urban information systems, Traffic safety, Magnetic tapes, Accident investigations, Information retrieval, Management information systems, Pennsylvania, *Traffic control, USAC project, *Reading(Pennsylvania).

Availability: NTIS, CP **T04,** 1 reel mag tape. Specify tape recording mode desired: 9 track, 800 or 1600 bpi, odd parity, EBCDIC; or 7 track, 556 or 800 bpi, odd or even parity, BCD. Price includes documentation.

PB-248 065/5

USAC Geographic Based Index System (GBIS) - Municipal COBOL Computer Programs Module Magnetic Tape. Release No. 1.

Software. This file contains the USAC geographic based index system module (GBIS) for the Wichita Falls, Texas, Integrated Municipal Information System (IMIS). The module is a set of procedures and files which describe geographic locations within the city of Witchita Falls. GBIS gives municipal departments the capability to retrieve and maintain geographic data as part of routine operations. It also assists the service oriented departments and their automated applications with consistent and correct addresses. There are 31 programs recorded on the tape. 256K bytes of core storage and 5 million bytes of disk storage are needed to operate this module on an IBM 370/145 computer.
Software description: These programs are written in the COBOL and ALC programming languages for implementation on an IBM 370 Model 145 computer using the DOS VS 29 operating system.
Related documentation: PB-227 709, PB-234 988.

Keywords: *Software, *Local government, *Information systems, *Municipalities, Data, Geography, COBOL, Programming languages, Information retrieval, Magnetic tapes, Computer programming, Texas, USAC project, Geographic base files, *Wichita Falls(Texas), Integrated municipal information systems, ALC programming language.

Availability: NTIS, CP **T04,** 1 reel mag tape. Specify tape recording mode desired: 9 track, 800 bpi, odd density, EBCDIC; or 7 track, even parity. Price includes documentation.

PB-250 761/4

Purchase Order Processing System (POPS). Release No. 1.

Software. This file contains the USAC Purchase Order Processing System Module for the Wichita Falls, Texas Integrated Municipal Information System (IMIS). This module, which includes the Payment Authorization and Travel Voucher System, constitutes the payable component of the program. Cost Accounting and Budgeting System (PCABS). The purpose of this module is to account for all expenditures made by the city for the procurement of goods or services, excluding payroll expenditures. There are 48 COBOL programs and 27 COBOL subroutines recorded on this tape. 256K bytes of core storage and 5M bytes of disk storage are needed to operate this module on an IBM Model 370/145 computer.
Software Description. These programs are written in the COBOL programming language for implementation on an IBM Model 370/145 computer using the DOS Version 29 operating system. The Data Entry System is needed to implement this module.
Related documentation: PB-227 709, PB-234 988.

Keywords: *Software, *Local government, *Information systems, *Purchasing, Texas, Magnetic tapes, Municipalities, Computer programs, Processing, Orders(Commitments), COBOL, *Wichita Falls(Texas), USAC project, Integrated municipal information systems.

Availability: NTIS, CP **T04,** 1 reel mag tape. Source tape is in EBCDIC character set. Tape can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions. Price includes documentation.

PB-250 762/2

Wichita Falls, Texas USAC Vehicle Maintenance Module.

Software. This tape contains the USAC Vehicle Maintenance System Module for the Wichita Falls, Texas Integrated Municipal Information System (IMIS). This module was designed to provide the city's central garage with more accurate information to aid in management and operation decisions concerning the city's rolling equipment. Included is implementation of an automated preventive maintenance subsystem to reduce non-scheduled workload and identification of capital costs and high operating cost areas. There are six defined components within the system: (1) Data Capture, (2) Cost Analysis, (3) Utilization Analysis, (4) Replacement Analysis, (5) Preventive Scheduling, (6) File Maintenance. There are 32 programs and 9 subroutines recorded on this tape. 256K bytes of core storage and 5M bytes of

disk storage are needed to operate this module on an IBM Model 370/145 computer. Technical documentation describing this module include: PB-227 709, Geographic Based Index System; PB-234 988, Data Entry System Application Completion Report.
Software Description: These programs are written in the FORTRAN and COBOL programming languages for implementation on an IBM Model 370/145 computer using the DOS Version 29 operating system. The Data Entry System is needed to implement this module.
Related documentation: PB-227 709, PB-234 988.

Keywords: *Software, *Local government, *Information systems, Texas, Vehicles, Maintenance management, Magnetic tapes, Computer programs, Preventive maintenance, Data processing, FORTRAN, COBOL, *Wichita Falls(Texas), USAC project, Integrated municipal information systems.

Availability: NTIS, CP **T04**, 1 reel mag tape. Source tape is in EBCDIC character set. Tape can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions. Documentation available.

PB-252 215/9

Data Dictionary System - Municipal COBOL Computer Programs Module Magnetic Tape. Release No. 1.

Software. This file contains the USAC data dictionary system module for the Wichita Falls, Texas integrated municipal information system (IMIS). The function of this module are: (1) to provide a method by which all design analysts must define data elements, thereby providing all others with detail information about every data element in the data base; (2) to provide documentation for municipal users for determining exactly what data is available in the data base and where it is located; (3) to provide documentation that may be used by other cities in determining what data is required to establish a similar IMIS; (4) to provide an accurate method by which logical groups of data records may be defined; (5) to provide the facility that will allow changes to the data base contents without creating a need to change existing application program coding; (6) to make data element names meaningful throughout the data base; (7) to streamline the method of communication between the design analysts and the data base designer, thereby restricting the proliferation of logical record definition; (8) to facilitate data access and data editing because of the reduction in the number of different logical record definitions. There are 11 programs and 11 subroutines recorded on the tape. 256K bytes of core storage and 5M bytes of disk storage are needed to operate this module.
Software Description: The programs and subroutines are written in the ANS 3 3.2 COBOL and ALC programming languages, respectively. They have been implemented on an IBM system 370/145 computer using the DOS VS 29 operating system. The Data Entry System is also needed for successful operation of this module. The proprietary IBM Teleprocessing package, C CS, is also needed for successful implementation.
Related documentation: PB-227 709, PB-234 988.

Keywords: *Software, *Local government, Information systems, *Definitions, Texas, Dictionaries, Computer programming, COBOL, Records management, Geography, Municipalities, Data processing, Data retrieval, Magnetic tapes, Modules, Programming languages, *Wichita Falls(Texas), USAC project, Integrated municipal information systems, Geographic base files.

Availability: NTIS, CP **T04**, 1 reel mag tape. Source tape is in EBCDIC character set. Tape can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions. Price includes documentation.

PB-252 216/7

Lot and Network Definition (Land) - Municipal COBOL and ALC Computer Programs Module Magnetic Tape. Release No. 1.

Software. This file contains the USAC lot and network (LAND) system module for the Wichita Falls, Texas integrated municipal information system (IMIS). This module is a set of procedures and programs directed at maintaining the geographic section of the integrated data base. This maintenance is required to ensure accurate definition of all parcels and streets within the city. Maintenance procedures and programs account for (1) creation of new streets, (2) creation of new parcels, (3) redefinition of parcel boundaries through (a) parcel splits and (b) combining parcels or portions thereof. There are seven COBOL programs and one ALC subroutine recorded on the tape. 256K bytes of core storage and 5M bytes of disk storage are on an IBM 370/145 computer. The Data Entry System Module and the IBM Proprietary Teleprocessing package, IBM CICS 1 (.2) DOS VS 29, are also required for successful implementation of the LAND module.
Software Description: The programs are written in the IBM ANS 3 3.2 COBOL programming language and the subroutines are written in the IBM ALC programming language.
Related documentation: PB-227 709, PB-234 988, PB-239 741.

Keywords: *Software, *Local government, *Information systems, *Records management, Computer programming, Methodology, Texas, Modules, Geography, Streets, Urban areas, Municipalities, Programming languages, Magnetic tapes, Land use, COBOL, *Wichita Falls(Texas), USAC project, Integrated municipal information systems, Data bases.

Availability: NTIS, CP **T04**, 1 reel mag tape. Source tape is in EBCDIC character set. Tape can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density and parity. Call NTIS Computer Products if you have questions. Price includes documentation.

PB-252 217/5

Special Assessments - Municipal COBOL Computer Programs Module Magnetic Tape. Release No. 1.

Software. This file contains the USAC special assessments module for the Wichita Falls, Texas integrated municipal information system (IMIS). The primary objective of this module is to provide an efficient and effective technique, at a single point, for

the process and control of information associated with the assessment procedure. To accomplish this, the system has been structured into two distinct, yet interrelated components (1) Billing and remittance, (2) File maintenance. There are eight programs, six subroutines and two coding structures recorded on the tape. 256K bytes of core storage and 5M bytes of disk storage are needed to implement this program.

Software Description: The programs are written in the ANS 3 3.2 COBOL programming language; the subroutines and the coding structures are written in the ALC programming language for implementation on an IBM 370/145 computer using the DOS VS operating system. The data entry system is also needed for implementing this module. The proprietary IBM Teleprocessing package, CICS, is also needed for successful implementation.

Related documentation: PB-227 709, PB-234 988.

Keywords: *Software, *Local government, *Information systems, *Assessments, Management methods, Texas, Methodology, Computer programming, Municipalities, Geography, Systems analysis, Billing, Records management, Modules, Magnetic tapes, Payment, Programming languages, COBOL, Geographic base files, *Wichita Falls(Texas), USAC project, Integrated municipal information systems.

Availability: NTIS, CP **T04**, 1 reel mag tape. Source tape is in EBCDIC character set. Tape can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions. Price includes documentation.

PB-252 218/3

System Status Summary - Municipal COBOL Computer Programs Module Magnetic Tape. Release No. 1.

Software. This file contains the USAC system status summary module for the Wichita Falls, Texas integrated municipal information system (IMIS). The primary objective of this module is to provide accurate and up-to-date information to management and team leaders regarding time expended on each application during development and maintenance. The module is able to satisfy this objective by (1) editing various fields such as job code, hours per month, and task code against predetermined tables; (2) using cost code tables to calculate monetary values for hours worked at job code level; (3) building and updating a master file which lists both the monthly and total hours expended on specific applications and includes monetary value of the time expended; and (4) building a master file. There are six programs, two subroutines and nine coding structures recorded on the tape. 256K bytes of core storage and 5M bytes of disk storage are required for successful implementation of this module on an IBM 370/145 computer using the DOS VS 29 operating system. The proprietary teleprocessing package, IBM CICS 1 (.2) DOS VS 29 and the Data Entry System Module are also needed for implementation on an IBM 370/145.

Software Description: The programs are written in the IBM ANS 3 3.2 COBOL programming language. The subroutines and coding structures are written in the ALC programming language.

Related documentation: PB-227 709, PB-234 988, PB-242 043.

Keywords: *Software, *Local government, *Information systems, *Project planning, Projects, Time, Surveys, Computer programming, Summarizing, Modules, Programming languages, Job analysis, Computation, Classifications, Records management, COBOL, *Wichita Falls(Texas), USAC project, Integrated municipal information systems, Hours worked.

Availability: NTIS, CP **T04**, 1 reel mag tape. Source tape is in EBCDIC character set. Tape can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions.

PB-252 630/9

Violation Information Processing System (VIP) - Municipal COBOL Computer Programs Module Magnetic Tape. Release No. 1.

Software. This file contains the USAC Municipal Court Violation Information Processing Module for the Wichita Falls, Texas Integrated Municipal Information System (IMIS). The purpose of this module is to assist the Municipal court in the discharge of its judicial responsibilities. This module processes information received from the Traffic Engineering Department and the Police Department in the form of overtime parking tickets, traffic citations, misdemeanor complaints, and records of arrest for various crimes within the city's jurisdiction. In turn it produces fiscal and statistical reports of all the Court's transactions for use by the Municipal Finance Division. This module also produces reports of police citations for drivers convicted of moving violations to the Texas Department of Public Safety. There are 27 programs, 8 subroutines and 3 coding structures recorded on the tape. 256K bytes of core storage and 5M bytes of disk storage are needed to operate this module. Technical documentation describing this module and its use include: PB-227 709, Geographic Based Index System, PB-234 988, Data Entry System Application Completion Report, PB-234 987, Municipal Court Violation Processing System Application Completion Report.

Software Description: The programs and subroutines are written in the COBOL and ALC programing languages respectively. They have been implemented on an IBM 370/145 computer using the DOS VS 29 operating system. The Data Entry System Module and the Proprietary IBM Teleprocessing package, CICS are needed for successful implementation of this module.

Related documentation: PB-227 709, PB-234 987, PB-234 988.

Keywords: *Software, *Local government, *Information systems, Municipalities, *Law enforcement, Texas, Computer programming, Traffic regulations, Parking facilities, COBOL, Records, Police, USAC project, *Wichita Falls(Texas), Violations, Vehicle violation tickets, Arrest records.

Availability: NTIS, CP **T04**, 1 reel mag tape. Source tape is in EBCDIC character set. Tape can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions. Documentation available.

PB-253 637/3

Law Enforcement Subsystem - Municipal COBOL Computer Programs Module Magnetic Tape.

Software. This tape contains the USAC Law Enforcement Subsystem for the Wichita Falls, Texas Integrated Municipal Information System (IMIS). This module was developed to serve cities ranging from 50,000 to 500,000 in population. While having been developed as a functional subsystem of the total project, its design allows it to function as an autonomous police system. Based on both standard law enforcement systems applications (warrants, stolen property, etc.) and innovative applications in automated police systems (event recording, article registration/accountability, premise check, etc.), the system not only provides field and investigative personnel with timely information, but also serves the police adminstration by providing decision making information (resource allocation, area activity, time analysis of events, etc.). There are 7 programs and 13 subroutines recorded on the tape. 256K bytes of core storage and 5M bytes of disk storage are needed to operate this module.

Software Description: The programs and subroutines are written in the COBOL and ALC programming languages, respectively. They have been implemented on an IBM 370/145 computer using the DOS VS 29 operating system. The Interactive Data Entry system module and the proprietary IBM Teleprocessing package, CICS are needed for the successful implementation of this module on an IBM 370/145 computer.

Related documentation: PB-227 709, PB-234 988, PB-249 824, PB-251 352.

Keywords: *Local government, *Information systems, *Law enforcement, *Municipalities, *Software, Texas, Computer programming, Police, Technology innovation, Management methods, COBOL, Modules, Magnetic tapes, *Wichita Falls(Texas), USAC project, Integrated municipal information systems, ALC programming language.

Availability: NTIS, CP **T04**, 1 reel mag tape. Source tape is in EBCDIC character set and certain fields contain packed decimal data. Character set restricts preparation in 9 track one-half inch tape only. Identify recording mode by specifying density only. Call NTIS Computer Products if you have questions. Price includes documentation.

PB-253 638/1

Internal Charges and Cash Receipts System - Municipal COBOL Computer Programs Module Magnetic Tape.

Software. This tape contains the USAC Internal Charges and Cash Receipts Module for the Wichita Falls, Texas Integrated Municipal Information System (IMIS). This module consists of a set of procedures designed to account for miscellaneous cash collections from revenues received by departments within the city organization. It provides accounting information for all charges to inventory stores accounts, which includes office supplies, copier reproduction, printing services, and postage charges made to various departments within the city. There are 19 programs recorded on the tape. 256K bytes of core storage and 5M bytes of disk storage are needed to operate this module. Technical documentation describing this module include: PB-236 775 Purchasing and Payables Application Completion Report, Volume I, PB-236 776 Purchasing and Payables Application Completion Report, Volume II.

Software Description: The programs are written in the ANS3 3.2 COBOL programming language. They have been implemented on an IBM 370/145 computer using the DOS VS 29 operating system. The Interactive Data Entry System Module and the Proprietary IBM Teleprocessing package, CICS are needed for the successful implementation of this module on an IBM 370/145 computer.

Related documentation: PB-236 775, PB-236 776.

Keywords: *Software, *Local government, *Information systems, *Revenue, Municipalities, Texas, Computer programming, *Cash flow, Receiving, Accounting, Magnetic tapes, Classifications, *Wichita Falls(Texas), USAC project, Integrated municipal information systems.

Availability: NTIS, CP **T04**, 1 reel mag tape. Source tape is in EBCDIC character set. Tape can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions. Documentation available.

PB-253 639/9

Fire Control System-Municipal COBOL Computer Programs Module Magnetic Tape.

Software. This tape contains the USAC Fire Control System Module for the Wichita Falls, Texas Integrated Municipal Information System. The purpose of the module is to provide a computerized data collection and reporting system as well as to provide all pertinent operational data for subsequent analysis. There are 8 programs and one subroutine recorded on the tape. 256K bytes of core storage and 5M bytes of disk storage are needed to operate this module.

Software Description: The programs are written in the IBM ANS 3 3.2 COBOL programming language while the subroutine is written in the IBM ALC programming language. These programs are written for implementation on an IBM 370/145 computer using the DOS VS 29 operating system. The Data Entry System Module and the proprietary IBM CICS Teleprocessing package are needed for the successful implementation of this module.

Related documentation: PB-227 709, PB-234 988, PB-251 482, PB-251 483, PB-251 484.

Keywords: *Software, *Local government, *Information systems, *Fire protection, Municipalities, Magnetic tapes, Fire departments, COBOL, Computer programming, Data processing, Reporting, Management, Technology, Texas, *Wichita Falls(Texas), Integrated municipal information systems, USAC project.

Availability: NTIS, CP **T04**, 1 reel mag tape. Source tape is in EBCDIC character set. Tape can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions. Price includes documentation.

Field 14—MUNICIPAL INFORMATION SYSTEMS

PB-253 640/7

Water Utility System (WUPSO) - Municipal COBOL Computer Programs Module Magnetic Tape. Release No. 1.

Software. This tape contains the USAC Water Utility Processing System Module for the Wichita Falls, Texas Integrated Municipal Information System. The purpose of the module is to determine the cost of water, sewer, refuse and assessment services provided, to bill each customer for the amount due and to collect payment on each account. The system's four components, which involve both batch and on-line processing are: (1) meter reading component, (2) billing and remittance component, (3) service change order component, and (4) customer inquiry component. There are 64 programs, 20 subroutines, and 8 coding structures recorded on the tape. 256K bytes of core storage and 5M bytes of disk storage are needed to operate this module.

Software Description: The programs are written in the IBM ANS 3 3.2 COBOL Programming language while the subroutines and coding structures are written in the Assembly Language Code. These programs are written for implementation on an IBM 370/145 computer using the DOS VS 29 operating system. The Data Entry System Module and the Proprietary IBM CICS Teleprocessing package are needed for the successful implementation of this module.

Related documentation: PB-227 709, PB-234 988, PB-247 781, PB-247 782.

Keywords: *Software, *Local government, *Water supply, *Information systems, Municipalities, Texas, Magnetic tapes, Public utilities, Cost analysis, Sewers, Billing, Measurement, Payment, COBOL, Documents, Computer programming, *Wichita Falls(Texas), USAC project, Integrated municipal information systems, Meter reading.

Availability: NTIS, CP **T04,** 1 reel mag tape. Source tape is in EBCDIC character set. Tape can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions. Price includes documentation.

PB-254 855/0

Data Entry System - Municipal ALC/COBOL Computer Programs Module Magnetic Tape. Release No. 1.

Software. This file contains the USAC Municipal Data Entry Module for the Wichita Falls, Texas, Integrated Municipal Information System (IMIS). This module is designed to operate in an on-line mode under the control of Disk Operating System/Customer Information Control System (DOS/CICS). Its primary functions are: (1) On-line entry of all data, (2) on-line correction of all data, (3) facility for communication between on-line and off-line processing, (4) control of transactions which are entered in a batched mode. There are 36 programs and 33 subroutines recorded on the tape. 256 bytes of core storage and 5M bytes of disk storage are needed to operate this module. Technical documentation describing this module include: PB-227 709, Geographic Based Index System; PB-234 988, Data Entry System Application Completion Report.

Software Description: The programs are written in the ALC and COBOL programming languages. The subroutines are written in ALC. These programs have been implemented on an IBM 370/145 computer using the DOS VS Release 29 operating system. The proprietary IBM Teleprocessing package, CICS is needed to successfully implement this module.

Related documentation: PB-227 709, PB-234 988.

Keywords: *Software, *Information systems, Data processing, *Local government, Magnetic tapes, Municipalities, Computer programs, Texas, COBOL, Modules, USAC project, *Wichita Falls(Texas), On line systems, Integrated municipal information systems.

Availability: NTIS, CP **T04,** 1 reel mag tape. Source tape is in EBCDIC character set. Tape can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions. Price includes documentation.

PB-254 970/7

Property Valuation and Equalization System - Municipal COBOL Computer Programs Module Magnetic Tape.

Software. This file contains the USAC property valuation and equalization system module for the Wichita Falls, Texas integrated municipal information system. The purpose of the module is to provide the capability for equalizing property appraisals according to market value. There are 34 computer programs and 13 subroutines recorded on the tape. 256K bytes of core storage and 5M bytes are required to implement the Module on an IBM 360 computer.

Software Description: The programs and subroutines are written in the ANS 3 3.2 COBOL and Assembly programming languages respectively. These programs are written for implementation on an IBM 370/145 computer using the DOS VS 29 operating system. The data entry system and the proprietary IBM CICS teleprocessing package are needed for the successful implementation of this module.

Related documentation: PB-227 709, PB-234 988, PB-249 822.

Keywords: *Software, *Local government, *Information systems, *Real property, Assessments, Magnetic tapes, Texas, Modules, Data processing, Municipalities, Market value, COBOL, *Wichita Falls(Texas), USAC project, Property valuation and equalization system, Integrated municipal information systems.

Availability: NTIS, CP **T04,** 1 reel mag tape. Source tape is in EBCDIC character set. Tape can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions. Price includes documentation.

PB-260 862/8

The Telecommunication/Data Management System (TCDMS) IBM Assembly Language Computer System Magnetic Tape, Release No. 3.

For complete citation, see 6 **Communications.**

PB-278 304/1

Equipment Management Information System

Software. This is the complete set of programs for the Equipment Management Information System. The system is tailored to the special needs of local governments. Developed by Public Technology, Inc. and the American Public Works Association, all programs are written in ANSI Cobol following FIPS low-intermediate level standards. The following support documentation is available and should be referenced in using this computer product: PTI/APWA Equipment management information system chief executive's report, Implementation handbook, Forms completion instructions, User's guide, Computer program testing instructions, Program documentation-repair module, Program documentation-billing module, Program documentation-preventive maintenance module, and Program documentation-general module.
Software Description: The program is written in the Cobol programming language for implementation on an IBM 360/155 computer using the OS/DOS operating system. 64K bytes of core storage are required to operate the model.
Related documentation: PB-274 160/1, PB-274 162/7, PB-274 163/3, PB-274 164/8, PB-274 165, PB-274 166, PB-274 170/0, PB-274 171/8, PB-274 173/4.

Keywords: *Software, *Management information systems, Equipment, Ground vehicles, Maintenance management, Computer programs, Specifications, Preventive maintenance, Local government, Magnetic tapes, PTI/APWA system, Equipment management, Motorized equipment, *Inventory control.

Availability: NTIS, CP **T07, mag tape***. Source tape is in EBCDIC character set. Tapes can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions. Price includes documentation.

15. NATURAL RESOURCES AND HYDROLOGY

AD-762 422/4

Analytic Modeling of Rock Structure Interaction - Computer Program for Analytic Modeling of Rock-Structure Interaction - Final Technical Report 1 Mar 72-30 Apr 73.

Software. The program uses recent advances in finite element theory and computer technology to analyze structures and cavities in rock. The program applies to general three-dimensional structures, considers nonlinear material properties, gravity loading and sequence of construction or excavation. The computer program has been used to analyze deflections in the back of a chamber excavated in argillaceous quartzite at the Caladay Project, Osburn, Idaho, as described in volume 1 of the report (AD-761 648). The computer program source magnetic tape is unlabeled. Each 1920 character block has 24 80-column Fortran card images. An end-of-file mark follows the last record. The computer program has many comment cards, and has three sections. The input, execution, and output sections may be executed as separate runs, if desired.
.Software Description: Program is written in the Fortran 4 programming language for initial implementation on a Univac 1108 computer.
Related documentation: AD-761 650/1, AD-761 649/3, AD-761 648/5.

Keywords: *Software, Computer programs, *Cavities, Rock properties, *Structural analysis, *Excavation, Finite element analysis, Computer models, *Rock mechanics.

Availability: NTIS, CP **T03,** 1 reel mag tape. Specify tape recording mode desired: 7 track, 556 or 800bpi, odd or even parity, Bcd; or 9 track, 800bpi, Ebcdic, odd parity. Price includes documentation.

AD-768 651/2

Finite Element Analysis of Stresses, Deformations and Progressive Failure of Non-Homogeneous Fissured Rock.

Software. The objective of this research program was development of finite element procedures for prediction of stresses and deformations in the vicinity of underground excavation.
Software Description: The program is written in Fortran for implementation on an IBM 370/165.
Related documentation: AD-768 650/4, AD-768 649/6, AD-768 648/8.

Keywords: *Software, Rock(Geology), Mechanical properties, *Underground structures, Stresses, Magnetic tape, Computer programs, Mining engineering, Foundations(Structures), Construction, Deformation, Elasticity, Plasticity, Crack propagation, Fracture(Mechanics), Failure(Mechanics), Finite element analysis, SD, *Excavation, *Rock mechanics.

Availability: NTIS, CP **T05,** 1 reel. Availability: Specify tape recording mode desired: 7 or 9 track. Price includes documentation.

AD-772 165/7

The Finite Element Computer Code NONLIN.

Software. The program was developed under research contract H0220047 'A Numerical Study of Uniaxial and Triaxial Rock Compression Tests.' The final technical report from this contract, which describes the use of this program, is currently available from NTIS under AD-764 099. To accomplish the study, the two-dimensional, quasi-static finite element code NONLIN was developed to solve problems involving nonlinear, nonhomogeneous, and anisotropic materials. Nonlinearities are studied by means of the incremental or the iteration techniques, or a combination of the two. To achieve fast convergence using the stiffness perturbation technique, new iteration scheme were developed which made the solution of a wider class of problems possible. Discontinuities in displacements that arise at interfaces or at joints and cracks in rocks were possible to analyze after a special element, was developed and incorporated in the code.
Related documentation: AD-764 099/8.

Keywords: *Software, *Rock mechanics, Computer programs, Punched cards, Compressive properties, Test methods, Computerized simulation, Cracks, Mining engineering, Triaxial stresses,

Load(Forces), Plastic flow, Numerical analysiss, NONLIN computer program, Finite element analysis, Compression tests, SD.

Availability: NTIS, CP **T04,** 1 reel mag tape. Price includes technical report.

COM-73-10298/0

National Weather Service River Forecast System, Forecast Procedures - Programs and Test Data

Software. A magnetic tape containing computer programs for the efficient implementation of a conceptual hydrologic model for river forecasting is provided. These programs are described in: National Weather Service River Forecast System, Forecast Procedures, NOAA Technical Memorandum NWS HYDRO-14, U.S. Department of Commerce, Silver Spring, Md., Dec., 1972. Test data are also included on the magnetic tape. There are eight programs written in the FORTRAN 4 language and nine sets of test data. Five programs are used for data processing and data manipulation. Model calibration, historical hydrograph simulation, and operational river flow forecasting programs are included. There are 17 files comprised of 12360 card images (records) on the magnetic tape. The computer programs are written for CDC 6600 computer.
Related documentation: COM-73-10365/7, COM-74-10728/5.

Keywords: *Software, *Flood forecasting, *Stream flow, *Rivers, Forecasting, Computer programs, Magnetic tapes, Weather forecasting, Data processing, FORTRAN, FORTRAN 4 programming, language, CDC 6600 computers, NOAA.

Availability: NTIS, CP **T04,** 1 reel mag tape*. Specify tape recording mode desired: 7 or 9 track. Price includes documentation.

COM-74-10931/5

National Weather Service River Forecast System, Snow Accumulation and Ablation Model.

Software. The magnetic tape contains computer programs and test data for the National Weather Service River Forecast System, Snow Accumulation and Ablation model. The complete source deck of the two programs used for model calibration (the verification and optimization programs) are included. In addition, the tape contains snow subroutines for the operational river forecasting program and three programs to compute mean areal air temperature. The test data are for the Passumpsic River at Passumpsic, Vermont. Precipitation, potential evapotranspiration, air temperature, and streamflow data are included.
Software Descriptions: The programs are written in FORTRAN IV extended for use on CDC 6600/ SCOPE 3.3 computer system. There are 12 files comprised of 11342 card images (records) on the magnetic tape.
Related documentation: COM-74-10728/5.

Keywords: *Software, *Stream flow, *Computer programs, Rivers, *Flood forecasting, Snowmelt, Snowfall, Atmospheric temperature, Precipitation(Meteorology), Evapotranspiration, Passumpsic River, FORTRAN, Magnetic tapes.

Availability: NTIS, CP **T04,** 1 reel mag tape. Specify tape recording mode desired: 7 track, BCD or 9 track, EBCDIC. Price includes documentation.

PB-182 557/9

MAIN 1, A System of Computerized Models for Calculating and Evaluating Municipal Water Requirements.

For complete citation, see 5 **Civil and Structural Engineering.**

PB-192 420/8

Forecasting Municipal Water Requirements, Library Tape.

For complete citation, see 5 **Civil and Structural Engineering.**

PB-192 421/6

Forecasting Municipal Water Requirements, System Tape.

For complete citation, see 5 **Civil and Structural Engineering.**

PB-192 422/4

MAIN C: Computerized Methodology for Evaluation of Municipal Water Conservation Research Programs. System Tape.

For complete citation, see 5 **Civil and Structural Engineering.**

PB-192 423/2

Main C: Computerized Methodology for Evaluation of Municipal Water Conservation Research Programs. Library Tape.

For complete citation, see 5 **Civil and Structural Engineering.**

PB-219 794/5

Magnetic Tape Containing Average Elevations of Topography in California and Adjacent Regions for Areas of 1x1 Minutes in Size.

Software. Average elevations of about 199,000 1x1 and 51,000 3x3 minute 'compartments' in California and vicinity are recored on a magnetic tape. The 1x1 minute coverage extends about 15 miles and the 3x3 minute about 100 miles in all directions beyond the California boundary. This digital model is adequate to compute terrain corrections to gravity data anywhere in California at a distance of about 1 1/2 to 100 miles from each gravity station and may also be of use in other scientific and environmental studies. A Fortran program used to convert 1x1 km UTM system digital data in southern California into the 1x1 minute format is included.
Related documentation: PB-219 795.

Keywords: *Software, *Topography, *California, Magnetic tapes, Elevation, Gravity corrections, USGS.

Availability: NTIS, CP **T03,** mag tape. Specify tape recording mode desired: 7 or 9 track.

PB-233 779/8

Project Formulation - Hydrology, Computer Program.

Software. The Tr-20 project formulation program is designed to handle flood routes of any frequency storm through various user-specified hydrologic networks. Detailed hydrographs and summary output reports are optionally requested. The program computes surface runoff resulting from any synthetic or natural rainstorm. It will take into account conditions having a bearing on runoff and will route the flow through stream channels and reservoirs. It wil combine the routed hydrograph with those from other tributaries and print out the peak discharges, their time of occurence and the water surface elevation for each at any desired cross section or structure. In addition it will print out the coordinates of the routed hydrograph together with the corresponding elevation of each if requested. The program provides for the continuous analyses of nine different storms over a watershed under present conditions, and with various combinations of land treatment floodwater-retarding structures and channel improvement. It will perform these routings through as many as 120 reaches and 60 structures in any one continuous run. It has been programmed so that other aspects of watershed planning can be added later.
Software Description: The program is written in Fortran 2 language for original implementation on an IBM 7090/7094 computer.
Related documentation: PB-233 778/0.

Keywords: *Software, Computer programs, Flooding, *Hydrology, *Storm flood routing, Magnetic tapes.

Availability: NTIS, CP **T03,** 1 reel mag tape. Specify tape recording mode desired: 7 track, Bcd, or 9 track, Ebcdic. Price includes User's Guide.

PB-256 902/8

A Model for Calculating Effects of Liquid Waste Disposal in Deep Saline Aquifers.

For complete citation, see 9 **Environmental Pollution and Control.**

PB-260 750/5

WSP2 - Water Surface Profile Computer Program.

Software. The WSP2 (Water Surface Profile 2) computer program can aid in the determination of flow characteristics for a given set of stream and floodplain conditions. More specifically, it can compute water surface profiles in open channels. The program also can estimate head losses at restrictive sections, including roadways with either a bridge opening or culverts. To use this program effectively, thorough understanding of the following procedures is necessary: (1) Procedures described in SCS National Engineering Handbook Section 4, Chapter 14; (2) Bridge loss analysis described in 'Hydraulics of Bridge Waterways,' Hydraulic Design Series No. 1, 2nd ed., Bureau of Public Roads, U.S. Department of Transportation, Washington, D.C. 1970; (3) Standard step method for running backwater profiles. One of several books in which this method is described is Ven Te Chow's 'Open Channel Hydraulics,' McGraw Hill Co., New York, New York 1959. Specific information about the data files is on comment cards at the beginning of the program listing. Because the computations require a large amount of physical data on valley shape, roughness, flow restrictions, etc. an attempt was made to make data entry as easy and flexible as possible. Punched output cards provide direct input to SCS flood routing and economic analysis computer programs.
Software Description: WSP2 is written in Fortran IV computer language and was developed on an IBM 360/65 computer. The three subprograms (HROFDA, DATE, and REREAD) were written in assembly language. Various field locations have adapted WSP2 to CDC and Univac systems. The program requires about 220K bytes of core storage and three temporary data files.
Related documentation: PB-260 751.

Keywords: *Software, *Water flow, Computer programs, Flood plains, Channel flow, Magnetic tapes, Bridges(Structures), Head losses, Hydraulics, WSP2 computer program, Water bridge interaction.

Availability: NTIS, CP **T03,** mag tape. Source tape is in EBCDIC character set. Tape(s) can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired. Call NTIS Computer Products if you have questions. Price includes documentation.

PB-261 026/9

WATEQF - A FORTRAN Version of WATEQF, a Computer Program for Calculating Chemical Equilibrium of Natural Waters.

For complete citation, see 4 **Chemistry and Physics.**

PB-264 153/8

National Weather Service River Forecast System, Model Program Containing Sacramento Model.

Models-simulation. The magnetic tape contains a version of the verification program for the National Weather Service River Forecast System (NWSRFS). This version of the verification program contains a soil-moisture accounting subroutine which is based on the Sacramento catchment model. All parameter values are defined in terms of metric units. The program also contains subroutines for snow accumulation and ablation, channel routing, hydrograph plotting and a statistical summary.
Software Description: The program (main program plus 16 subroutines) is written in FORTRAN IV Extended for use on a CDC 6600/SCOPE 3.3 computer system. Core storage required is 39K decimal words. There is one file containing 3746 card images (records) on the magnetic tape.
Related documentation: PB-264 154.

Keywords: *Models-simulation, *Soil water, *Catch basins, *Snow, Forecasting, *Rivers, Hydrology, Magnetic tapes, Computer programs, FORTRAN, Channel improvements, Computers, Snow cover, Ablation, Snowdrifts, National Weather Service River Forecast System.

Availability: NTIS, CP **T03,** mag tape. Source tape is in BCD character set. Tape(s) can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions. Price includes documentation.

PB-264 763/4

A Master Environmental Control and Mine System Design Simulator for Underground Coal Mining.

Software. The computer programs on this tape comprise The Master Environmental Control and Mine System Design Simulator for Underground Coal Mining. This simulator is completely documented in an 11-volume report available through NTIS (PB-255 420/AS). The Simulator has a wide range of possible applications in the design and evaluation of underground coal mining systems from the standpoints of health and safety, productivity, and mine environment. It consists of nine free-standing function-oriented subsystem models linked together into an integrated, comprehensive model of an entire mining system. The subsystems which make up the Simulator are Geology and Reserves, Methane Generation, Roof Support, Subsidence, Production, Rail Haulage, Cost, Water Generation and Ventilation. In addition to these, there is a Dynamic subsystem in which the production, rail haulage, methane generation and roof support subsystems function interactively on a continuous basis during the simulation of a mining operation. Test data for each of the programs found on this tape are available on BuMines Tape 2-77 (MDS-8). These test data correspond to example applications of each of the subsystems found in the report.

Software Description: The system is written in the Fortran programming language for implementation on an IBM 370/168 computer using the OS version, MVT level operating system. Currently, largest required core storage is 560K bytes, depending on program used. However, fully resident may require 750K bytes of core storage.

Related documentation: PB-264 764, PB-264 765, PB-255 421, PB-255 422, PB-255 423, PB-255 424, PB-255 425, PB-255 426, PB-255 427, PB-255 428, PB-255 429, PB-255 430, PB-255 431.

Keywords: *Software, *Coal mining, *Surface mining, *Underground mining, Safety engineering, Health physics, Computerized simulation, Environmental surveys, Magnetic tapes, Fortran, IBM 370/168 computers.

Availability: NTIS, CP **T06,** mag tape. Source tape is in EBCDIC character set. Tape(s) can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions. Price includes documentation.

PB-265 555/3

WATSIM - A Fortran Program for 24 Hour Simulation of Flows and Reservoir Fluctuations in Water Distribution Networks.

Software. WATSIM simulates the flow of water in water distribution networks consisting of pipes, pumps, pressure reducing valves, one way valves, reservoirs, storage tanks, and fluctuating loads. It can be used either to solve for instantaneous flow rates in a network, or to simulate the operation of such a network over an extended period (24 plus hours). This simulation includes changes in reservoir or storage tank levels driven by fluctuating demand, and the operation of time or pressure actuated valves. The program is capable of simulating up to a 500 node, 750 line network in its present version, and can be expanded by redimensioning directly proportional to network size.

Software Description: The program is written in the Fortran programming language for implementation on a UNIVAC 1106/1108 computer using the Exec 8 level operating system. 200K bytes of core storage are required to operate the model.

Related documentation: PB-230 148.

Keywords: *Software, *Water supply, Water flow, Water resources, Computer programs, Magnetic tapes, Fortran, Computation, Computerized simulation, Reservoirs, Water pipelines, *WATSIM computer program.

Availability: NTIS, CP **T05,** mag tape. Source tape is in EBCDIC character set. Tape(s) can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions. Price includes documentation.

PB-265 556/1

Prototype Software for On-Line Storage Forecasting Supported by Load Forecasting and Reduced System Representation for Water Distribution Systems.

Software. Ten computer programs are used in research in Water System Hourly Demand Forecasting (system wide or by pressure zone), Reduced Representation of Pressure Zone Networks, and on-line Storage Forecasting. These programs are prototype Fortran code for algorithms that a water utility might desire to implement on an advanced distribution control system, as described in the report (OWRT C-6198). The program will be usable as they are in an off-line study mode, but will require extensive adaptation to the individual utility's system and control computer, perhaps including rewriting in another language.

Software Description: The program is written in the Fortran programming language for implementation on a UNIVAC 1106/1108 computer using the Exec 8 level operating system. 200K bytes of core storage are required to operate the model.

Related documentation: PB-268 964, PB-269 026.

Keywords: *Software, *Water supply, Computer programs, Fortran, Demand(Economics), Forecasting, Load control, Algorithms.

Availability: NTIS, CP **T06,** mag tape. Source tape is in EBCDIC character set. Tape(s) can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions. Price includes documentation.

PB-269 415/6

Wave Equation Analysis of Pile Driving System.

Software. A computer program was written and tested that performs a realistic Wave Equation Analysis of Piles driven by any type of impact hammer. Conventional pile and soil models were used in addition to both a thermodynamic model for diesels and refined mechanical hammer models. The program development was aimed at providing a simple input and both a flexible and extensive output that includes automatic plotting capabilities. Pile Driving Hammer data were prepared and stored in a file for most of the commonly encountered models. The computer language is Fortran IV. The program was extensively tested against measured pile top force and velocity data and against measured diesel combustion pressure and stroke. This program uses a method of analysis known as the Wave Equation. It has been used to predict impact stress in piles at the time of driving. This information makes it possible for the engineer to answer such questions as: Can a given hammer drive a pile to the required depth of penetration; Will excessive stresses be induced in pile or hammer during driving; What cushion is necessary to limit driving stresses.

Software Description: The program is written in the FORTRAN IV programming language for implementation on an IBM 360/65 computer using the OS operating system. The computer memory requirement is 144K.

Related documentation: PB-261 900, PB-261 901, PB-261 902, PB-261 903, PB-261 905, PB-261 906, PB-261 907, PB-261 908.

Keywords: *Software, Pile structures, *Pile driving, *Wave equations, Computer programs, Soil properties, Bearing piles, Bearing capacity, Concrete piles, Stress analysis, Pile drivers, WEAP computer program, *Soil resilience.

Availability: NTIS, CP **T07**, mag tape. Source tape is in EBCDIC character set. Tape(s) can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired. Call NTIS Computer Products if you have questions. Price includes documentation.

PB-269 450/3

Bush Dome Model - Computing Movement of Injected Crude Helium.

Models-simulation. A two-dimensional mathematical model has been developed by the Bureau of Mines, to simulate storage and withdrawal operations in a free gas reservoir. The program executes the mathematics of the partial differential equation for Darcy flow of three distinct gases, and can be used to simulate and predict pressure, withdrawal and injection information in gas reservoirs. The computing package consists of a main program and four support programs for preparing input data. Basic input data required are porosity, permeability and thickness arrays that describe these reservoir characteristics on an areal basis. In addition to these data, the program requires gas compressibility and viscosity information for the gases flowing in the reservoir. A document has been prepared to accompany the tape file entitled 'Bush Dome Model-Computing Movement of Injected Crude Helium, General Instruction Manual for Computer Program KWDX-577-MP for Computing Gas Movement in a Gas Storage Reservoir'.

Software Description: The program is written in the Fortran programming language for implementation on an IBM 360/65 computer using the OS operating system. 512K bytes of core storage are required to operate the model.

Related documentation: PB-269 451.

Keywords: *Models-simulation, Computerized simulation, *Helium, *Underground storage, *Gas reservoirs, Magnetic tapes, Gas flow, Mathematical models, Removal, Pressure, Gas injection, Permeability, Porosity, Thickness, Viscosity, Compressibility, Fortran.

Availability: NTIS, CP **T04**, mag tape. Source tape is in ASCII character set. Character set restricts preparation to 9 track one-half inch tape only. Identify recording mode by specifying density only. Call NTIS Computer Products if you have questions. Price includes documentation.

PB-276 367/0

Transverse Mercator Point Plot.

For complete citation, see 3 **Cartography.**

PB-292 927/1

Advancement of Mine Ventilation Network Analysis from Art to Science.

Models-simulation. This is a computer tape of six volumes of Bureau of Mines Open File Report 123-78. Under the project, a mine ventilation simulator was developed. Sensitivity of leakage and friction factors on the total quantity and pressure requirements was studied. The simulator was applied to a new mine under development, and to an operating mine, to demonstrate the usefulness of the simulator in ventilation planning and in evaluating proposed changes to existing ventilation systems.

Software Description: This system is written in the Fortran IV programming language for PSU/MVS and all other Fortran IV with WATF. The source computer is an IBM 360/168 using the OS/MVI, 21.8 HASP-2.T4M operating system.

Related documentation: PB-290 192, PB-290 193, PB-290 194, PB-290 195, PB-290 196, PB-290 197.

Keywords: *Models-simulation, *Mine ventilation, *Coal mines, Computerized simulation, Fortran, Magnetic tapes, Network analysis.

Availability: NTIS, CP **T07**, mag tape*. Source tape is in EBCDIC character set. Tapes can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density and parity. Call NTIS Computer Products if you have questions. Price includes documentation.

PB-294 444/5

Needs Survey (1978): Continuous Stormwater Pollution Simulation Systems.

For complete citation, see 9 **Environmental Pollution and Control.**

PB-294 807/3

The Sandia Waste Isolation Flow and Transport (SWIFT) Model.

Models-simulation. This model provides finite difference solutions of partial differential equations describing the hydrogeologic behavior of ground water containing trace quantities of radioisotopes in a porous medium. The equations represent: (1) the conservation of total liquid mass, (2) conservation of energy, (3) conservation of the mass of a major (i.e. non-trace quantity) contaminant in solution dissolved in the fluid phase and absorbed on the rock medium, including their radioactive decay.
Software Description: The computer programs are written in the Fortran IV programming language for implementation on a CDC 6600 computer using the SCOPE 3.3 Version 331 operating system. 11K bytes of storage are needed to operate the system.
Related documentation: SAND-78-1267.

Keywords: *Models-simulation, *Hydrogeology, *Radioactive waste disposal, *Ground water, Radioactive isotopes, Porous materials, Transport theory, Mathematical models, Partial differential equations, Finite difference theory, Computer programs, Fortran, Magnetic tapes, Radionuclide migration, Radioactive waste disposal, Underground disposal, Sandia Waste Isolation and Transport model, SWIFT model.

Availability: NTIS, CP **T05**, mag tape. Source tape is in Binary character set. Character set restricts preparation to 7 track, one-half inch tape only. Identify recording mode by specifying density and parity only. Call NTIS Computer Products if you have questions. Price includes documentation.

PB-297 342/8

Methane-Water Flow in Coalbeds.

Software. The program calculates transient, two-dimensional, gas-water flow in a porous medium. The gas flow obeys laminar Darcy flow. The porosity, permeability, and reservoir thickness can vary with location. A moving boundary can be used to simulate a mine entry advancement. Gas-water relative permeabilities are inputs as functions of water saturation.
Software Description: The program is written in Fortran programming language for implementation on a Control Data Corporation 74-28 computer using the Network Operating System Version 1.1. There are 110,000 Octal Words.
Related documentation: PB-297 343.

Keywords: *Software, *Methane, Multiphase flow, Fluid flow, Coal mines, Two phase flow, Fortran, Computer programs, Darcys law, Magnetic tapes, *Water flow, *Coal mining.

Availability: NTIS, CP **T04**, mag tape. Source tape is in EBCDIC character set. Tapes can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions. Price includes documentation.

PB80-122534

U.S. Geological Survey Waste Injection Program (SWIP 2).

For complete citation, see 9 **Environmental Pollution and Control.**

PB81-151052

DWOPER: The National Weather Service Operational Dynamic Wave Model.

For complete citation, see 5 **Civil and Structural Engineering.**

PB81-151078

DAMBRK Model Ver. A (National Weather Service).

Models-simulation. The National Weather Service DAMBRK Model develops an outflow discharge hydrograph due to head dependent flow through spillways, over the dam crest, and through a time dependent, variable geometry, dynamic breach. The breach characteristics are specified by the model user. The effects of reservoir inflows are considered along with the storage characteristics of the reservoir via a choice of either storage or dynamic wave routing within the reservoir. Capabilities for generating a wave due to landslides is also available in DAMBRK. Effects of any bridge-highway embankments on the flow of the dam-break waters through the downstream valley are directly considered.
Software Description: The system is written in the FORTRAN programming language for implementation on an IBM 360/195 computer using the OS/MVT release 21.8F operating system. Memory requirement is 398K for 'G' type compiler (more core required when using an 'H' compiler).
Related documentation: PB81-151086.

Keywords: *Models-simulation, *Flood forecasting, Dams, Water flow, Mathematical models, Spillways, Failure, Bridges, Embankments, Magnetic tapes, DAMBRK model.

Availability: NTIS, CP **T05**, mag tape. Source tape is in EBCDIC character set. Tapes can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired. Call NTIS Computer Products if you have questions. Price includes documentation.

PB81-151094

DAMBRK Model Ver. B (National Weather Service).

Models-simulation. The National Weather Service DAMBRK Model develops an outflow discharge hydrograph due to head dependent flow through spillways, over the dam crest, and through a time dependent, variable geometry, dynamic breach. The effects of reservoir inflows are considered along with the storage characteristics of the reservoir via a choice of either storage or dynamic wave routing within the reservoir. Effects of any bridge-highway embankments on the flow of the dam-break waters through the downstream valley are directly considered. DAMBRK can also simulate the complex flow due to failure of an upstream dam into a valley containing one or more downstream dams/reservoirs.
Software Description: The system is written in the FORTRAN programming language for implementation on an IBM 360/395 computer using the OS/MVT release 21.8F operating system. The computer memory requirement is 306K bytes ('G' type compil-

er. More core required when using 'H' type compiler.)
Related documentation: PB81-151086.

Keywords: *Models-simulation, *Flood forecasting, Dams, Failure, Mathematical models, Water flow, Bridges, Embankments, Magnetic tapes, DAMBRK model.

Availability: NTIS, CP **T05,** mag tape. Source tape is in EBCDIC character set. Tapes can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired. Call NTIS Computer Products if you have questions. Price includes documentation.

PB81-184913

Oil and Gas Reservoir Per Se Dynamic Model with Associated Economic Model.

Models-simulation. An economic model has been linked to an oil reservoir model to assess the effects of alternative optimization criteria on production and investment strategies. The Oil Reservoir Model describes the state variables as volumetric averages through time and is, thus, a 'lumped-parameter' model.
Software Description: The system is written in the FORTRAN programming language for implementation on a Honeywell 6000 computer using the GCOS operating system.
Related documentation: PB81-184939, PB81-184921.

Keywords: *Models-simulation, *Economic models, *Oil reservoirs, *Gas reservoirs, Reservoir engineering, Computerized simulation, Supply(Economics), Reserves, Production, Investments, Natural gas, Gas supply, Fossil fuel deposits, Crude oil, Magnetic tapes, Fortran, Computer programming, *Reservoirs, Production models.

Availability: NTIS, CP **T05,** mag tape. Source tape is in ASCII character set. Character set restricts preparation to 9 track one-half inch tape only. Identify recording mode by specifying density only. Call NTIS Computer Products if you have questions. Price includes documentation.

16. TRANSPORTATION

PB-173 017/5

TRANSIM.

Software. The Transim transportation was developed at the University of California, Los Angeles, to fill the need for a general purpose computer simulation that is simple and economical to use for a wide variety of problems in transportation; these may concern different modes, traffic types, firm sizes, or system situations. Transim's significant features include the following: (1) a standard computer program and modular approach to the structuring of system models. Together, these result in considerable savings in time and cost of analysis. Because no new programming is necessary from problem to problem, the definition of any specific problem for analysis and the preparation for the actual simulation can be accomplished by personnel not familiar with computer technology or programming. Transim's includes a detailed User's Manual, and data collection and preparation forms are written in transportation language to aid the user. (2) Simulation of operations of complex transportation systems on a one-to-one basis, without mathematical abstractions. This, together with Monte Carlo sampling techniques, permits more precise representation of the complexity of the real world in transportation, especially where randomness influences are significant in total system performance. Transim was developed through application to a number of real life problems - each deliberately selected to be different in scope, complexity, and mix of transportation modes. Applications ranged from simulation of terminal operations and simulation of unit train operations, to simulation of the entire Great Lakes vessel, port, and pilotage systems. Both the simulator and the data collection procedures were tested and improved in these applications. There are three end products of Project Transim: (1) User's Manual which describes the simulator and delineates the procedures for its use. (The User's Manual also discusses topics of more general interest, such as the concept of the systems approach, and the difference between mathematical models and computer simulators such as Transim) (2) A computer program card image tape for the IBM 7090/7094 along with standard program documentation, and (3) Case Studies in Transim analysis, which demonstrates how Transim has been successfully applied in a variety of situations.
Related documentation: PB-176 158/4, PB-173 016/7.

Keywords: *Software, *Transportation, Computer programs, Computerized simulation, Classifications, Transim transportation simulator.

Availability: NTIS, CP **T03,** 1 reel mag tape. Specify tape recording mode desired: 7 track, Bcd; or 9 track, Ebcdic. Price includes documentation.

PB-182 155/2

Simulation and the Airport Problem: Computer Simulation Programs.

Models-simulation. The Airport Simulation was programmed for the Office of Economics and Systems Analysis in the Department of Transportation to facilitate analysis of the impact of 747 aircraft on airports. The model simulates the flow of passengers, their baggage and their related visitors through the United Airlines' terminal building at Kennedy Airport, New York, as affected by the physical constraints of the building, the arrival and departure of aircraft, and the supporting airline terminal staff. The computer program is written in Cdc 3600 Simscript language.
Related documentation: PB-182 153/7, PB-182 154/5.

Keywords: *Models-simulation, *Airports, *Civil aviation, Jet, New York, Computerized simulation, *Boeing 747 aircraft, Baggage handling, Airport personnel, Passenger data, Visitors.

Availability: NTIS, CP **T03,** 1 reel mag tape. Specify tape recording mode desired: 7 track, Bcd; or 9 track, Ebcdic. Price includes documentation.

Field 16—TRANSPORTATION

PB-195 293/6

Three Files of Source Programs for Transportation Model - Report for 30 Jan - 30 Jun 70.

Software. Three files of source card images provide programs for transportation models as described in PB-195 292. The records are 80 character images, unblocked on a nonlabeled tape. Technical data: The file was created on IBM-360. File one contains 61 records in assembly language, used as a 'Read' subroutine for the ground model. File two contains 3138 records in Fortran Ebcdic coding, and contains the source program for the ground models. File three contains 2167 records in Fortran Ebcdic coding and contains the source program for the air model.
Related documentation: PB-195 291/0, PB-195 292/8.

Keywords: *Software, *Transportation models, *Developing countries, Computer programs, *Air transportation, *Highway transportation, Rail transportation, Programming languages.

Availability: NTIS, CP **T03,** 1 reel mag tape. Specify tape recording mode desired: 7 track, Bcd; or 9 track, Ebcdic. Price includes documentation.

PB-219 779/6

Intercity Transportation Effectiveness Model, Documentation Volume II. Final Computer Programs, Book 5 of 5, Appendix A.3.

Models-simulation. The Intercity Transportation Effectiveness (ITE) computer programs are composed of a Data Base System, System Executive, and the ITE Model programs. The Data Base programs are used to create, update, and print the data base. The System Executive is used to control the flow of 'in process' data between the various programs of the ITE Model and to save intermediate and final results. The model programs are structured in five modules, namely, Passenger Demand, Cargo Demand, Routes, Network Assignment, and Timetable Building. Saved results can be printed by means of a Report Generator Program.
Software Description: The original system is programmed in Extended FORTRAN 4 for execution on a CDC 6600 computer. These tapes have unblocked card image source statements.

Keywords: *Models-simulation, *Air transportation, *Transportation models, Computer programs, Passenger transportation, Air cargo, Scheduling, Terminal facilities, Urban transportation, Linear programming, Fortran, Cost analysis, Magnetic tapes, Intercity transportation systems, ASPI.

Availability: NTIS, CP **T05,** mag tape. Specify tape recording mode desired: 7 or 9 track. Price includes documentation.

PB-219 786/1

Intercity Transportation Effectiveness Access/Assignment Model. Computer Program, Source Tape Transmittal.

Models-simulation. The Intercity Transportation Effectiveness Access/Assignment Model is a planning tool designed to evaluate the alternatives available for increasing the capacity of groundside passenger handling facilities to accomodate the expected increase in air travel, specifically the expansion of existing airports, the construction of new airports, and the construction of off-site or satellite passenger processing facilities. The system is programmed in extended Fortran 4 for execution on a Cdc 6600 computer. The tape contains unblocked card image source statements. Instructions for updating and compiling the program are included.
Related documentation: PB-219 780/4, PB-219 781/2, PB-219 782/0, PB-219 783/8, PB-219 784/6, PB-219 785/3, PB-219 787/9, PB-219 788/7.

Keywords: *Models-simulation, *Airports, Air transportation, *Passenger transportation, *Economic models, Computer programs, Facilities, Construction.

Availability: NTIS, CP **T03,** 1 reel mag tape. Specify tape recording mode desired: 7 track, Bcd; or 9 track, Ebcdic. Price includes documentation.

PB-222 295/8

SIGOP: Traffic Signal Optimization Program Source Tape

Software. The tape is a source tape for the SIGOP signal timing optimization IBM 360/05 computer program. The program uses as input basic traffic data such as volumes, desired travel time, number of lanes, signal phasing and a number of facters for expressing special characteristics such as turning movements, platoon coherence, etc. for each input or optimization period, the program computes up to ten cycles, slots and offsets for a grid network of a maximum of 150 intersections. Print out includes tabulation of these control parameters as well as time space diagrams and relative efficiency measurements in terms of delay, number of stops and user cost. Selection of optimum cycle is made by comparison of efficiency criteria. The program is written in FORTRAN IV in six files. Operating system used is OS MFT/HASP release 21.6.
Related documentation: PB-182 836/7, PB-182 835/9, PB-173 738/6.

Keywords: *Software, *Vehicular traffic control, *Signal lights, Computer programs, Traffic signals, Urban areas, Synchronism, Optimization, Networks, Intersections, Efficiency, Subroutines, Traffic signal optimization, FHAPR.

Availability: NTIS, CP **T05,** 2400 ft mag tape. Specify tape recording mode desired. Price includes documentation.

PB-224 085/1

TRANSYT Method for Area Control Program.

Software. The tape contains a source program of the TRANSYT/5 computer program. The source code is written in FORTRAN 4, and has been implemented on an IBM/360. Every 80 character record in the source program is numbered by thousands in card columns 73 thru 80, starting with 00001000 and ending with 02547000. The tape contains one file, with an EOF following the last logical record. The records are fixed length (80 characters) and blocked 21 records per block. The tape contains standard IBM labels, with serial number ESD028. Tape density is 800 bits per inch. File data set name is TRANSYT.

Software Description: The tape was created using the IBM utility: IEBGENER on an IBM 360/65 Operating System, MFT, with HASP - Release 21.6.
Related documentation: PB-224 084/4.

Keywords: *Software, *Vehicular traffic control, Traffic lights, Magnetic tapes, Great Britain, *TRANSYT computer program.

Availability: NTIS, CP **T05**, 1 reel mag tape. Specify tape recording mode desired: 7 track or 9 track. Price includes documentation.

PB-227 228/4

Urban Traffic Control System FORTRAN 4 Source Program and Benchmark Tape.

Software. The Urban Traffic Control System (UTCS) was developed and implemented in Washington, D.C., under contract, by the Federal Highway Administration. The functions of this system include on-street surveillance and digital computer control of traffic signals. The software which was developed for this system has been translated into FORTRAN 4 programing language and placed on magnetic tape. The tape contains 26 files, the first 21 of which are the subroutines of the UTCS FORTRAN 4 source program and the last five of which are the associated Benchmark Program. The tape was generated on an IBM 360/65 computer and contains standard IBM file labels and blocked 80 character records.
Related documentation: PB-225 351/6, PB-225 352/4.

Keywords: *Software, *Vehicular traffic control, Computer programming, Magnetic tapes, Traffic signals, Digital computers, Control equipment, *Traffic control.

Availability: NTIS, CP **T03**, 1 reel mag tape. Specify tape recording mode desired: 7 track, Bcd; or 9 track, Ebcdic.

PB-240 490/3

Traffic Control Device Inventory Municipal COBOL Computer Programs Module Technical Tape.

For complete citation, see 14 **Municipal Information Systems.**

PB-243 456/1

Reading USAC Project Traffic Accident Recording Computer Program Module, Release No. 1.

For complete citation, see 14 **Municipal Information Systems.**

PB-250 762/2

Wichita Falls, Texas USAC Vehicle Maintenance Module.

For complete citation, see 14 **Municipal Information Systems.**

PB-252 631/7

Project Management System (PMS) Through the Use of the Critical Path Method (CPM).

Software. This computer program provides scheduling, cost and resource control, and information handling convenience for individual and multi-project scheduling; but it does not design a network, or plan out a project. PMS functions as a handler, computer selector, and displayer of information which will increase the abilities of the project planner.
Software Description: The program is written in the FORTRAN programming language for implementation on an IBM 360 computer using the O S operating system.
Related documentation: PB-244 835.

Keywords: *Software, *Transportation, Project planning, Computer programming, Scheduling, Cost control, Resources, Information systems, FORTRAN, Technical assistance, *Critical path method, Management systems, *Project management, *Urban transportation.

Availability: NTIS, CP **T03**, 1 reel mag tape. Source tape is in EBCDIC character set. Tape can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions. Price includes documentation.

PB-259 887/8

Simulation Model of Police Patrol Operations. Release 1.0.

For complete citation, see 10 **Government Administration and Services.**

PB-274 018/1

Motor Vehicle Management System.

For complete citation, see 10 **Government Administration and Services.**

PB-296 391/6

A Multipurpose Train Performance Calculator.

Models-simulation. This computerized model is a train performance calculator (TPC) program which simulates the operation of a passenger train over a rail route. The input for the program is the track data for the route, the characteristics of the locomotive, the type and number of cars, and the number of passengers. The output from the TPC is in the form of tables showing speed, time, and fuel used; and in the form of graphs showing speed, time, and fuel used versus distance travelled. The TPC has been in use for two years to study the energy intensity of AMTRAK trains in the New York to Buffalo corridor.
Software Description: The program is written in the BCL programming language for implementation on a Burroughs B5700 computer using the MCP MARK XVI.0.178 operating system. 96K bytes of core storage are required to operate the model.
Related documentation: PB-296 392, PB-296 393.

Keywords: *Models-simulation, *Rail transportation, *Passenger transportation, Fuel consumption, Velocity, Time, Computer programs, Magnetic tapes, Computerized simulation, TPC computer program.

Availability: NTIS, CP **T08**, mag tape. Source tape is in BCL character set. Character set restricts preparation to 7 track, one-half inch tape only. Identify recording mode by specifying density

and parity only. Call NTIS Computer Products if you have questions. Price includes documentation.

PB-297 797/3

A Pavement Design and Management System for Forest Service Roads - Implementation.

For complete citation, see 5 **Civil and Structural Engineering.**

PB80-115736

Computer Dial-A-Ride.

Software. Computer Dial-A-Ride is a system of computer programs that automates the operation of a personalized transportation service; a service that provides on request a shared-ride from any location within a community to another. Since 1975 this computer system has been tested and operational in Rochester, New York with guidance and project management provided by the Massachusetts Institute of Technology, Department of Civil Engineering. The system consists of a real-time program that controls all aspects of scheduling and dispatching the transportation service and various support programs used for file maintenance and statistical analyses. **Software Description:** The program is written in the FORTRAN and Assembly programming languages for implementation on a DEC, model PDP-10, computer using the TOPS-10 operating system. 650K bytes of core storage are required to operate the model.

Related documentation: PB80-115744, PB80-115751, PB80-115769, PB80-115777, PB80-115785.

Keywords: *Software, *Urban transportation, Computer programs, Magnetic tapes, Services, Scheduling, Fortran, Real time operations, *Computer Dial A Ride system, Dial a ride systems, Public transportation, Shared ride transportation services, Demand responsive transportation systems.

Availability: NTIS, CP **T12,** mag tape. Source tape is in ASCII character set. Character set restricts preparation to 9 track one-half inch tape only. Identify recording mode by specifying density only. Call NTIS Computer Products if you have questions. Price includes documentation.

PB80-196330

Rural Highway Planning System.

Software. An effective highway transportation planning process is the basis for, and is a necessary continuous part of, efficient highway transportation management. A series of manuals and accompanying computer programs were developed to provide guidelines for establishing a system and the basic data collection programs and analysis that are a necessary beginning for accomplishing such a planning process. This software package has been developed to analyze the data that will be collected by following the instructions described in the Road Inventory, Traffic Surveys, and Adequacy Rating Manuals. The computer programs are described and documented in the 'Computer Program Users Manual,' Vols. 1, 2 and 3. This battery of software includes 21, 7 and 12 programs for analyzing the road inventory, traffic survey, and adequacy rating data, respectively. Included with the computer programs are test data for each program and sample outputs which should be of great assistance while installing the programs. Programs included in the package provides means for storing, editing, and reporting such basic data. Special provisions have been made for easy conversion of titles to most foreign languages. Highway Log reports include Route Lengths. Mileage Summaries by pavement type, Summaries of highway structures, and Route logs. Adequacy reports include road adequacy ratings, and an improvement priority analysis. Traffic survey reports include peak hourly Volumes, Average daily traffic, Vehicle classification summaries, truck axle loading, and commodity flow analyses.
Software Description: The Program is written in the COBOL-ANSI 74 programming language for implementation on a IBM computer using the OS/MVT 21.8F operating System. 126K bytes of core storage are required to operate the system.
Related documentation: PB80-196389, PB80-196371, PB80-196363, PB80-196355.

Keywords: *Software, *Rural areas, *Highway transportation, Highway planning, Computer programs, Highways, Roads, Regional planning, Inventories, Traffic surveys, Routes, Motor vehicles, Trucks, Vehicular traffic, Traffic engineering.

Availability: NTIS, CP **T11,** mag tape*. Source tape is in EBCDIC character set. Tapes can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Specify recording mode desired. Call NTIS Computer Products if you have questions. Price includes documentation.

PB81-112179

End Use Energy Consumption Data Base: Transport Sector Retrieval Program.

For complete citation, see 8 **Energy.**

PB81-199556

FTFC52 - Freight Train Fuel Consumption Computer Program.

Software. This tape contains a copy of a computer program for the prediction of fuel consumption of a freight train operated over track with known characteristics. The program is written in FORTRAN for the IBM VM/370 computer.
Related documentation: PB81-199564, PB-280 969, PB80-118326, PB81-191017.

Keywords: *Software, *Railroad trains, *Fuel consumption, Freight cars, Aerodynamic drag, Railroad tracks, Aerodynamic forces, Air resistance, IBM-VM/370 computers.

Availability: NTIS, CP **T03,** mag tape. Source tape is in EBCDIC character set. Tapes can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired. Call NTIS Computer Products if you have questions. Price includes documentation.

PB81-200701

Light-Duty Vehicle Fuel Consumption Model.

Models-simulation. The research forecasts fuel consumption form past and projected characteristics of the automobile and light-duty truck vehicle fleet, including annual new vehicle registration, scrappage

rates, vehicle average fuel economics as determined through EPA test procedures, and on-road miles per gallon discount factors that account for in-use driving conditions and reduce fuel economy below EPA test values.
Software Description: The model is written in the FORTRAN programming language for implementation on an IBM 370/3033 computer using the OS/VS2 operating system.

Keywords: *Models-simulation, *Motor vehicles, *Fuel consumption, Magnetic tapes, Automobiles, Trucks, Forecasting, NTISDE.

Availability: NTIS, CP **T02,** mag tape. Source tape is in EBCDIC character set. Tapes can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording modes desired. Call NTIS Computer Products if you have questions. Price includes documentation.

17. MISCELLANEOUS

AD-A075 395/4

Propagation Correction (PPC) Model Computer Program.

Models-Simulation. This FORTRAN source program consists of a driver and eight subroutines. Inputs to the program are receiver position (geodetic), time(year, month, day, hour, minute), OMEGA transmitting stations and frequency. Output is a propagation correction (PPC) for each transmitting station and a PPC for the phase (path) difference. The program is an updated (for 10.2 kHz) and slightly revised version of an earlier program indexed as AD-A017 481. Except fo these minor modifications, the program is thoroughly documented in the report 'OMEGA Propagation Corrections: Background and Computational Algorithm'-Morris, P. and Cha, M., ONSOD 01-74, AD-A008 424.
Software Description: The program is written in the FORTRAN programming language for implementation on a Honeywell 6080 computer using the GCOS operating system. The computer memory requirement is 100K.
Related documentation: AD-A008 424.

Keywords: *Models-simulation, Omega navigation, Corrections, Mathematical models, Electromagnetic wave propagation, Very low frequency, Subroutines, *Navigation, *Electromagnetic wave transmission, *Wave propagation, H-Honeywell-6080.

Availability: NTIS, CP **T03,** mag tape. Source tape is in EBCDIC character set. Tapes(s) can be prepared in most standard 7 or 9 track recording models for one-half inch tape. Identify recording mode desired. Call NTIS Computer products if you have questions. Price includes documentation.

AD-A079 899/1

Fuselage Mounted Antenna Pattern Prediction Computer Program.

Models-simulation. This tape contains one source computer program. It is named the 'OSWON' program. This program can be used to predict an antenna radiation pattern for up to 9 fuselage mounted antennas. The aircraft's fuselage, wings, horizontal stabilizers, and veritcal stabilizers can be modeled in the program. The program will compute information necessary for polar antenna pattern plots. If the plots are desired, a magnetic tape drive may be used. The generated tapes from this program can be used on a California Computer Products CALCOMP pen plotter, model 763, to produce the desired antenna patterns.

Software Description: The program is written in the FORTRAN IV programming language for initial use on a CDC 6600/CYBER 170 computer using the Kronos 2.1 operating system. 29K bytes of core storage are required for use on a CDC 6600/CYBER 170 computer. (Author)

Related documentation: AD-A065 587.

Keywords: *Models-simulation, *Antenna radiation patterns, *Aircraft antennas, Computer programs, High frequency, Wing body configurations, Fortran, Magnetic tapes, Geometrical theory of diffraction, OSWON computer program, CDC-6600 computers, Cyber-170 computers, Fortran 4 programming language.

Availability: NTIS, CP **T04,** Mag tape. Source tape is in EBCDIC character set. Tape(s) can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density and parity, Call NTIS Computer Products if you have questions. Price includes documentation.

AD-A079 900/7

Wing Mounted Antenna Pattern Prediction Computer Program.

Models-simulation. This tape contains one source computer program. It is named the OSUOFF program. This program can be used to predict antenna patterns for up to 50 antennas in the presence of various structures which can be simulated by finite flat plates, an infinite ground plane, and/or a finite elliptic cylinder. An application of this program is to obtain antenna patterns of antennas mounted on the wing of an aircraft. This program will compute information necessary for polar antenna pattern plots. If the plots are desired, a magnetic tape drive may be used. The generated tapes from this program may be used on a California Computer Products CALCOMP pen plotter, model 763, to produce the desired antenna patterns.

Software Description: This program is written in the FORTRAN IV programming language for initial use on a CDC 6600/CYBER 170 computer using the KRONOS 2.1 operating system. 29K bytes of core storage are required for use on a CDC 6600/CYBER 170 computer. (Author)

Related documentation: AD-A065 589.

Keywords: *Models-simulation, *Antenna radiation patterns, *Aircraft antennas, Computer programs, High frequency, Mounts, Wings, Wing body configurations, Fortran, Magnetic tapes, Geometrical theory of diffraction, OSUOFF computer program.

Availability: NTIS, CP **T04,** Mag tape. Source tape is in EBCDIC character set. Tape(s) can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density and parity. Call NTIS Computer Products if you have questions. Price includes documentation.

Field 17—MISCELLANEOUS

AD-A093 689/8

Acquisition Cost Estimating Using Simulation

Software. Acquisition cost estimates developed as single point values are, at best, misleading and, at worst, impossible to achieve. Single point estimates do not sufficiently reflect the assumptions, judgment or apprehensions of the estimator. This program deals with a technique for incorporating uncertainty and risk into the acquisition cost estimating procedure such that the estimates are presented as a range of values, encompassing engineering, manufacturing and logistic support estimates. The cost estimating model, a pragmatic application of simulation and classical cost estimating procedures, has been programmed in BASIC and is generalizable and exportable.

Software Description: The program is written in the BASIC programming language for implementation on a WANG 2200 computer using the Basic 2, Release 2.1, operating system. 32K bytes of core storage are required to operate the model.

Related documentation: AD-A015 624.

Keywords: *Software, *Cost estimates, Computer programs, Computerized simulation, *Procurement, Magnetic tape.

Availability: NTIS, CP **T03,** mag tape. Availability: Source tape is in ASCII character set. Character set restricts preparation to 9-track, one-half inch tape only. Identify recording mode by specifying density only. Call NTIS Computer Products if you have any questions. Price includes documentation.

AD-766 514/4

The Douglas-Neumann Program for Three-Dimensional Potential Flow About Arbitrary Lifting Bodies

Software. A computer program calculates the incompressible potential flow about bodies by a method using singularity distributions on the body surface.

Software Description: The program was set up to be run in either IBM 360 or 370 systems, and is written in Fortran IV language. The program is recorded on a 9-track magnetic tape (8000BPI) as a nonlabeled data file.

Related documentation: AD-755 933/9, AD-755 480/1.

Keywords: *Software, *Lifting reentry vehicles, Aerodynamic characteristics, Programming(Computers), Incompressible flow, Magnetic tape, Three-dimensional flow, Statistical distributions, Surface properties, Programming languages, Problem solving, Potential flow, Computer aided analysis.

Availability: NTIS, CP **T06,** 1 reel mag tape. Availability: Specify tape recording mode desired: 7 track, 556 and 800bpi, odd and even parity; or 9 track, 800bpi, odd parity. Price includes documentation.

COM-74-10921/6

The NOS HYDROPLOT/HYDROLOG System Software Library.

Software. The magnetic tape contains all source and object software currently in use on the NOS HYDROPLOT/HYDROLOG System. The software was copied directly from paper tapes. The NOS HYDROPLOT/HYDROLOG system is used to collect and process nautical data for the publication and maintenance of nautical charts of the United States and its possessions covering a water area comprising some two million miles. The system uses conventional electronic navigation equipment and computer-aided hydrography on straight lines while simultaneously providing automatic digital coding, listing and plotting of the survey dat in real time.

Software Description: The system integrates a DEC PDP-8/E, a Ross Digital Echo Sounder Analog Recorder (Digitizer), the NOS Hydroplot controller and various I/O devices.

Related documentation: COM-74-10924/0, COM-74-10923/2, COM-74-10922/4.

Keywords: *Software, *Hydrographic surveys, Computer systems programs, Magnetic tapes, Shipboard computers, *Mapping, Nautical maps, Nautical charts, NOAA, HYDROPLOT/HYDROLOG system.

Availability: NTIS, CP **T08,** 1 reel mag tape*. Specify tape recording mode desired: 7 track, 556 and 800bpi, odd and even parity; or 9 track, 800bpi, odd parity. Price includes documentation.

COM-75-10180/8

SPLASH I Programs and Data Base, SPLASH II Programs and Data Base.

Models-simulation. The SPLASH programs are a computer simulation of the surge (water height increase above normal astronomic tide) caused by tropical storms (in particular, hurricanes) on the open coast. A mathematical model of storm forces and pressures is caused to move across a simulated 'basin', composed of bathymetric and geographic data from a data base on the same tape. This bathymetric and geographic data serve as variable coefficients and boundary values for a system of shallow water wave equations whose numeric solution is calculated and thereby yields the surge. The storm is modelled with parameters of storm strength, size, position, and course supplied on data cards by the user; the bathymetric and geographic data for the Gulf Coast and East Coast of the U.S. are supplied on the tape, since these are relatively fixed quantities.

Software Description: These programs are written in the FORTRAN and ASSEMBLY programming languages for implementation on a CDC-6600 computer using the SCOPE 3.3 operating system. The computer memory requirement is 323K decimal bytes or 77K octal words.

Related documentation: COM-75-10181/6, COM-74-10925/7, COM-72-10807/9.

Keywords: *Models-simulation, *Sea states, *Storm surges, Magnetic tape, Computerized simulation, SPLASH 1 computer program, SPLASH 2 computer program, SPLASH system, Tropical cyclones, Hurricanes.

Availability: NTIS, CP **T05,** 1 reel mag tape. Specify tape recording mode desired: 9 track, Ebcdic; or 7 track, BCD. Price includes documentation.

PB-183 537/0

'Bounds to Bending Frequencies of Non-Uniform Shafts, and Applications to Missiles'.

For complete citation, see 5 **Civil and Structural Engineering.**

PB-238 823/9

Photochemical Air Quality Simulation Models.

For complete citation, see 9 **Environmental Pollution and Control.**

PB-264 562/0

Synoptic Rainfall Data Analysis Program (SYNOP). Release No. 1.

Software. An integral part of the assessment of storm loads on water quality is the statistical evaluation of rainfall records. Hourly rainfall records of many years duration are cumbersome and difficult to analyze. The purpose of this rainfall data analysis program is to provide the user with a tool for summarizing and statistically characterizing a rainfall record of interest using U.S. Weather Bureau magnetic tapes. Statistical analysis of variables of interest (volume, duration, intensity, and time between storms) are given to determine seasonal trends which are of importance in accessing impacts and selecting control alternatives for storm related loads. **Software Description:** The program is written in the Fortran programming language for implementation on an IBM 1130 computer using the DMS, version 2 operating system. 32K bytes of core storage are required to operate the model.
Related documentation: PB-264 563.

Keywords: *Software, *Water supply, *Rainfall, Storms, Magnetic tapes, Statistical analysis, Computation, Fortran, Synop computer program.

Availability: NTIS, CP **T04**, mag tape. Source tape is in EBCDIC character set. Tape(s) can be prepared in most standard 7 or track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions. Price includes documentation.

PB-269 384/4

Simulation of Growth and Harvest of Northern Hardwood Forest Stands.

Models-simulation. The system consists of 2 programs (796 and 381 records, resp.). The computer program system simulates the development and treatment of even-aged northern hardwoods in New England. The sapling phase begins with species distributions by quality classes. Natural mortality rates are applied, and a weeding option is available to select crop trees. A diameter distribution is generated for each species, and the smaller trees in the understory are dropped from the stand. The pole-timber-sawtimber-harvest phase projects stand growth to any rotation age or diameter, using available stocking guides, yield-table data, and gross growth estimates. Thinning and final harvest yields are presented by species and quality classes. Using available data, the connecting phases of the simulator have been tested to determine the effects of silvicultural treatments (or lack of treatments) on long-term stand response.

Software Description: The model is written in the Fortran programming language for implementation on an IBM 370/148 computer using the VM/CMS/DOS, version 27, operating system.

Keywords: *Models-simulation, Forest trees, *Forestry, Hardwoods, Distribution(Property), Plant growth, Yield, Estimates, Cutting, Harvesting, Quality, Computerized simulation, Silviculture, New England.

Availability: NTIS, CP **T05**, mag tape. Source tape is in EBCDIC character set. Tape(s) can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired. Call NTIS Computer Products if you have questions. Price includes documentation.

PB-276 839/8

An Oceanic General Circulation Model with Bottom Topography.

Models-simulation. This model allows prediction of the three-dimensional fields of velocity, temperature, and salinity in an ocean of arbitrary geometry. The model was designed to be applied to the multiconnected world ocean, and to be coupled to the UCLA atmospheric general circulation model for the study of global climate; but it can also be used for other applications, such as the study of mesoscale ocean dynamics. The primitive equations for an ocean with a rigid lid are approximated by an energy conserving finite-difference scheme having second-order accuracy. Bryan's (1969) method of differencing is followed, except for the vertically averaged flow, where Takano's (1974) method, which has semi-implicit differencing of the beta-term and hole relaxation of islands, is generalized for a variable ocean depth. The computer program for the model minimizes core storage, without loss of speed, by cycling latitude lines of data through the memory while the computation proceeds. The Fortran code is designed to minimize computation time on most modern computers, including array processors.

Software Description: This program is written in the Fortran programming language for processing on an IBM 360/91 computer using the OS Operating System. Actual amount of core required is model dependent.

Related documentation: PB-276 840/6.

Keywords: *Models-simulation, Ocean temperature, Salinity, Ocean currents, Mathematical models, Computerized simulation, Magnetic tapes, Three dimensional flow, *Ocean models, Ocean bottom.

Availability: NTIS, CP **T05**, mag tape. Source tape is in EBCDIC character set. Tapes can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions. Price includes documentation.

Field 17—MISCELLANEOUS

PB-298 373/2

Computer Program Package for Metric Conversion.

Software. The programs in this package are designed to convert dimensions and other quantities appearing on engineering drawings from metric to U.S. customary units and vice versa. They were developed by Caterpillar Tractor Co. and General Motors Corporation. In addition to the programs themselves, the package contains documentation explaining how to get the programs running on different computers and how to use them, and test problems to permit users to verify that the programs run correctly on their own computers. The Caterpillar program converts 31 different metric units to their U.S. customary equivalents. In contrast, the General Motors programs convert in both directions but work with millimetres and inches only. The General Motors programs also use rounding conventions differing somewhat from those employed in the Caterpillar program. Both the Caterpillar and the General Motors programs are written in American National Standard Fortran and are suitable for use on a wide range of computers with little or no modification. The Caterpillar program is operated in batch mode while the General Motors programs are interactive.

Software Description: The program is written in the Fortran programming language for implementation on a UNIVAC 1108 computer using the Execu 8 operating system. 64K bytes of core storage are required to operate the model.

Related documentation: COM75-10960.

Keywords: *Software, *Metric system, Conversion, Magnetic tapes, L=Fortran.

Availability: NTIS, CP **T05**, mag tape. Source tape is in EBCDIC character set. Tapes can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions. Price includes documentation.

PB80-224975

Construction Management Control System.

For complete citation, see 5 **Civil and Structural Engineering.**

PB81-128423

Probabilistic Assessment of Tornado-Borne Missile Speeds.

Software. A procedure was developed for estimating speeds with which postulated missiles hit any given set or targets in a nuclear power plant or similar installation. Hit speeds corresponding to probabilities of occurrence of .0000001 were calculated for a given nuclear power plant under various assumptions concerning the magnitude of the force opposing missile take-off, direction of tornado axis of translation, number and location of missiles, and size of target area. The results of the calculations are shown to depend upon the parameters: CDA/m, where CD = drag coefficient, A = projected area, m = mass of missiles, and the ratio, k, between the minimum aerodynamic force required to cause missile take-off, and the weight of the missile.

Software Description: The system is written in the FORTRAN programming language for implementation on a UNIVAC 1108 computer using the UNIVAC 1100 operating system version 33R3A. The computer memory requirement is 200K.

Related documentation: PB81-128431.

Keywords: *Software, *Nuclear powerplants, *Tornadoes, Wind(Meteorology), Probability theory, *Windborne debris.

Availability: NTIS, CP **T08**, mag tape. Source tape is in ASCII character set. Character set restricts preparation to 9 track, one-half inch tape only. Identify recording mode by specifying density only. Call NTIS Computer Products if you have questions. Price includes documentation.

PB81-182909

Technical Assignment Control System (TACS).

Software. The Technical Assignment Control System (TACS) is designed to record up to 32 independent items of information which otherwise identify, describe, document, or account for unique work tasks. Each week, any given employee receives a turnaround document on which he or she is required to update the status of ongoing tasks and to provide the hours-worked on each assignment. After processing, a substantial number of enduser reports are made available to management.

Software Description: This system is written in ANSI COBOL for implementation on an IBM 370/168 computer using the OS/VS2 operating system. Computer memory requirement for largest program is 900K.

Related documentation: PB81-182917.

Keywords: *Software, Computer programmming, *Task analysis, *Management control reports, Scheduling, Project management, Magnetic tapes, *Job analysis, Cobol, Reporting, Working hours, TACS system.

Availability: NTIS, CP **T14**, mag tape. Source tape is in EBCDIC character set. Tapes can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track density, and parity. Call NTIS Computer Products if you have questions. Price includes documentation.

PB81-182933

Macom (Major Command) Materiel Readiness Reporting System.

Software. This system provides, on a quarterly basis, a management tool which can be used to evaluate the status, posture, and conditions of selected items of equipment submitted by the installations. The items meeting the requirements are selected for printing. Output from this system consists of printed reports detailing these selected items.

Software Description: This system is written in COBOL for implementation on an IBM 360/50 computer using the OS (21.6) operating system. 98K bytes of core storage are required to operate the largest program.

Related documentation: PB81-182941.

Keywords: *Software, Computer programming, *Inventory control, Magnetic tapes, *Logistics management, Reporting, Cobol, Equipment, Macom system.

Availability: NTIS, CP **T05**, mag tape. Source tape is in EBCDIC character set. Tapes can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions. Price includes documentation.

PB81-182958

Order Bill Time Analysis.

Software. This system was developed to improve control of supply obligations. The report will provide a historical record by accounting processing code of all requisitions and will outline the time expended from date of requisition to date of obligation. The information is then used to forecast dollar value of incoming obligations.

Software Description: This program is written in the ANSI COBOL programming language for implementation on an RCA 7060 computer using the MFT (21.8) operating system. 80K bytes of core storage are required to operate the program.

Keywords: *Software, Computer programming, *Supply management, Magnetic tapes, *Procurement, Orders(Commitments), *Billing, Cobol.

Availability: NTIS, CP **T02**, mag tape. Source tape is in EBCDIC character set. Tapes can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions.

PB81-182982

Bidders Mailing List.

For complete citation, see 2 **Business and Economics**.

PB81-183006

Contract Modification Tracking System.

Software. The purpose of this system is to provide a method of tracking modifications to procurement contracts and produce the management reports necessary for timely resolutions of unsettled modifications.

Software Description: This system is written in COBOL for implementation on a CDC 6600 computer using the scope operating system. The largest program requires 75K of core storage.

Related documentation: PB81-183014.

Keywords: *Software, Computer programming, *Contracts, Modified contracts, Government procurement, Magnetic tapes, *Procurement, Contracts, Contracted services.

Availability: NTIS, CP **T08**, mag tape. Source tape is in BCD character set. Tapes can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions. Price includes documentation.

PB81-183022

Task Name Management System.

Software. System objective is to provide a reasonably inexpensive method of managing the task names. It enables the collection into a central file of all data relative to a particular task name and the generation of retrievals for inhouse as well as regular users. These retrievals and reports are essential in order to manage the task names which are the principal accounting tools used by the agency. The basic file is the Taskusefile and is updated monthly. From this file there are numerous retieval programs which extract information to generate reports. In addition, a query update subschema is used with it for additional retrievals. The update portion is consolidated from information relative to task name into the Taskusefile from nine card, disk and tape files.

Software Description: This system is written in COBOL for implementation on a CDC 6500 computer using the NOSBE operating system. The computer memory requirement is 77K.

Keywords: *Software, Computer programming, *Task analysis, Management systems, *Job analysis, Magnetic tapes, Accounting, Cobol.

Availability: NTIS, CP **T05**, mag tape. Source tape is in BCD character set. Tapes can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions.

PB81-183030

Travel Cost Model.

Software. This model can be used to determine travel and per diem costs for training courses or meetings at any location for travelers from dispersed locations. It can also be used to find optimal locations for training or meeting facilities given a certain population to be served.

Software Description: This model is written in BASIC for implementation on a Honeywell 66/80 computer using the 4J operating system. The computer memory requirement is 1K.

Keywords: *Software, Computer programming, *Transportation, *Cost estimates, *Training, *Travel, Expenses, Magnetic tapes.

Availability: NTIS, Mag Tape $95.00, mag tape. Source tape is in EBCDIC character set. Tapes can be prepared in most standard 7 to 9 track recoding modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions.

PB81-217408

Irrigation Water Management and Conservation Program (MINI-80).

Software. The programs use climate, soil, crop, and distribution system paramaters to develop an optimum schedule for the timing and application of irrigation water, and for accounting water demands thoughout the distribution system. Input data also includes soil moisture status acquired from various types of measuring devices including the neutron

probe. Programs are included for scheduling the water requirements on total irrigation projects.
Software Description: The program is written in the FORTRAN programming language for implementatin on a CDC 74/28 computer using the NOS operating system. 50K bytes of core storage are required to operate the model.
Related documentation: PB81-217416.

Keywords: *Software, *Irrigation systems, *Water conservation, Fortran, Probes, Water distribution, Farm crops, Soil water, Climate, Magnetic tapes.

Availability: NTIS, CP **T05**, mag tape. Source tape is in EBCDIC character set. Tapes can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions. Price includes documentation.

PB81-235418

An Interactive Activity Scheduling Program (ACTLST).

Software. ACTLST is an interactive activity scheduling program that automatically generates for each user a chronologically sequenced activity file, keeping track of his action items by target date and providing a record of their completion dates. Various options are incorporated in ACTLST to update this activity file. These options include: adding and deleting activities, inserting activity completion dates, and changing target dates. Further, an activity report encompassing the entire activity file, any specified block of days, or any single day may be requested and printed on either the line printer or the user's terminal. However, no special knowledge is required to use the program, since all program required information is obtained through interactive requests that essentially amount to yes/no responses on the part of the user.

Software Description: The program is written in Fortran for implementation on a DEC-10 computer under 1080/KL. Approximately 11K words of core are required.

Related documentation: PB81-235426.

Keywords: *Software, *Scheduling, *Project planning, Computer programming, Fortran, Management planning, Magnetic tapes, ACTLST computer program.

Availability: NTIS, CP **T05**, mag tape*. Source tape is in EBCDIC character set. Tapes can be prepared in most standard 7 or 9 track recording modes for one-half inch tape. Identify recording mode desired by specifying character set, track, density, and parity. Call NTIS Computer Products if you have questions. Price includes documentation.

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PB80-122534 9 CP T08

PB80-125354
MLAB: An On-Line Modeling System.
PB80-125354 7 CP T08

PB80-133002
CENTS-AID 2.6.
PB80-133002 13 Mag Tape $900.00

PB80-133036
Industrial Source Complex (ISC) Dispersion Model.
PB80-133036 9 CP T06

PB80-148398
DOE-2 Building Energy Use Analysis Program.
PB80-148398 8 Mag Tape $485.00

PB80-150204
Carbon Monoxide Hot Spot Guidelines Mobile Model.
PB80-150204 9 CP T06

PB80-168156
MPTER (Multiple Point Algorithm with Terrain Adjustment).
PB80-168156 9 CP T06

PB80-170160
MULTIMAX: An Air Dispersion Modeling Program for Multiple Sources, Receptors, and Concentrations.
PB80-170160 9 CP T04

PB80-191323
UPGRADE: User Prompted Graphic Data Evaluation System.
PB80-191323 7 CP T08

PB80-196330
Rural Highway Planning System.
PB80-196330 16 CP T11

PB80-202658
ILS (Integrated Library System).
PB80-202658 12 CP T99

PB80-219892
COBOL Compiler Validation System Version 4.0 (1974).
PB80-219892 7 CP T13

PB80-219918
S2KPLOT - System 2000 Data Base Plotting Interface.
PB80-219918 7 CP T13

PB80-220833
CALINE3 - A Versatile Dispersion Model for Predicting Air Pollutant Levels Near Highways and Arterial Streets.
PB80-220833 9 CP T03

PB80-224975
Construction Management Control System.
PB80-224975 5 CP T10

PB81-100406
COBOL Realignment System, UNIVAC Version.
PB81-100406 7 CP T07

PB81-100422
COBOL Realignment System, IBM Version.
PB81-100422 7 CP T07

PB81-100430
Communication System Performance Model for VHF and Higher Frequencies.
PB81-100430 6 CP T10

PB81-104168
EXEC/OP FORTRAN Source Code.
PB81-104168 9 CP T05

PB81-112179
End Use Energy Consumption Data Base: Transport Sector Retrieval Program.
PB81-112179 8 CP T05

PB81-114381
The ELSTAR Stationary Source Emissions Data Preprocessor.
PB81-114381 9 CP T05

PB81-128365
General Purpose Interactive Plotting Programs.
PB81-128365 7 CP T03

PB81-128399
NBS Minimal Basic Test Programs, Version 2.
PB81-128399 7 CP T05

PB81-128423
Probabilistic Assessment of Tornado-Borne Missile Speeds.
PB81-128423 17 CP T08

PB81-130114
OMEGA - Interactive Data Entry and Validation System.
PB81-130114 7 CP T14

PB81-151052
DWOPER: The National Weather Service Operational Dynamic Wave Model.
PB81-151052 5 CP T05

PB81-151078
DAMBRK Model Ver. A (National Weather Service).
PB81-151078 15 CP T05

PB81-151094
DAMBRK Model Ver. B (National Weather Service).
PB81-151094 15 CP **T05**

PB81-151110
VIEWGRAPH - Conversational Computer Graphics Program.
PB81-151110 7 CP **T03**

PB81-151136
SHADED PIE - Conversational Computer Graphics Program,
PB81-151136 7 CP **T03**

PB81-151151
EZ-PLOT - Conversational Computer Graphics Program.
PB81-151151 7 CP **T03**

PB81-160491
ADTECH - Impact of Administrative Technology on Acute Bed Need.
PB81-160491 11 CP **T05**

PB81-164600
UNAMAP (Version 4), User's Network for Applied Modeling of Air Pollution.
PB81-164600 9 CP **T13**

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Mesoscale Air Quality Simulation Models.
PB81-179236 9 CP **T11**

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Technical Assignment Control System (TACS).
PB81-182909 17 CP **T14**

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Arsbuild - Teletype Report Optimizer.
PB81-182925 6 CP **T03**

PB81-182933
Macom (Major Command) Materiel Readiness Reporting System.
PB81-182933 17 CP **T05**

PB81-182958
Order Bill Time Analysis.
PB81-182958 17 CP **T02**

PB81-182966
Expand GPO Catalog Number for Sorting Purposes.
PB81-182966 12 CP **T03**

PB81-182974
Plotting Routine Dimens.
PB81-182974 7 Mag Tape $95.00

PB81-182982
Bidders Mailing List.
PB81-182982 2 CP **T03**

PB81-183006
Contract Modification Tracking System.
PB81-183006 17 CP **T08**

PB81-183022
Task Name Management System.
PB81-183022 17 CP **T05**

PB81-183030
Travel Cost Model.
PB81-183030 17 Mag Tape $95.00

PB81-183048
MIL-STD 1750 Assembler (Alap)/Linker (Links).
PB81-183048 7 CP **T08**

PB81-183089
MIL-STD 1750 Interpretive Computer Simulator.
PB81-183089 7 CP **T11**

PB81-183121
AN/AYK-15A (MIL-STD) 1750) Interpretive Computer Simulator.
PB81-183121 7 CP **T11**

PB81-183162
MIL-STD 1750 Alap Assembler/Linker (Links).
PB81-183162 7 CP **T08**

PB81-183212
DOE-2 Building Energy Use Analysis Program (IBM Machine Version).
PB81-183212 5 Mag Tape $525.00

PB81-184657
System Queue Information for UNIVAC 1108
PB81-184657 7 CP **T05**

PB81-184673
Workload Control and Tape Library Maintenance
PB81-184673 7 CP **T14**

PB81-184913
Oil and Gas Reservoir Per Se Dynamic Model with Associated Economic Model
PB81-184913 15 CP **T05**

PB81-194748
Chemical Substances Information Network Pre-Prototype Intelligent Terminal System.
PB81-194748 12 CP **T99**

PB81-196453
Evaluation of Findings from Nurse Practitioner and Physician Assistant Studies: PE Aggregate Data File and Related Software.
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FTFC52 - Freight Train Fuel Consumption Computer Program.
PB81-199556 16 CP **T03**

PB81-200685
Short-Term Integrated Forecasting System.
PB81-200685 8 CP **T05**

PB81-200693
Reserves Allocation and Mine Cost Model.
PB81-200693 8 CP **T03**

PB81-200701
Light-Duty Vehicle Fuel Consumption Model.
PB81-200701 16 CP **T02**

PB81-200727
Midterm Oil and Gas Supply Model.
PB81-200727 8 CP **T05**

PB81-201212
Conceptual Capital Cost Model.
PB81-201212 8 Mag Tape $95.00

PB81-201220
Long-Term Energy Analysis Package.
PB81-201220 8 CP **T11**

PB81-201238
Mid-Term Energy Forecasting System, Demand Analysis System.
PB81-201238 8 CP **T05**

PB81-201246
Enhanced Oil Recovery Model.
PB81-201246 8 CP **T05**

PB81-210338
Computer Directed Training System (CDTS).
PB81-210338 10 CP **T14**

PB81-217408
Irrigation Water Management and Conservation Program (MINI-80).
PB81-217408 17 CP **T05**

PB81-217424
Road Design System (RDS).
PB81-217424 5 CP **T08**

PB81-223067
MOBILE2: Computer Tape Containing Program to Simulate Mobile Source Emissions, Generating Emission Factors for Three Pollutants.
PB81-223067 9 CP **T08**

PB81-233934
PILOT (LHC 8080).
PB81-233934 1 Diskette $30.00

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An Interactive Activity Scheduling Program (ACTLST).
PB81-235418 17 CP **T05**

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TRANSIM.
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Simulation and the Airport Problem: Computer Simulation Programs.
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MAIN 1, A System of Computerized Models for Calculating and Evaluating Municipal Water Requirements.
PB-182 557/9 5 CP **T05**

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System and Software Simulator.
PB-182 846/6 7 CP **T04**

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'Bounds to Bending Frequencies of Non-Uniform Shafts, and Applications to Missiles'.
PB-183 537/0 5 CP **T03**

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Forecasting Municipal Water Requirements, Library Tape.
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PB-192 421/6
Forecasting Municipal Water Requirements, System Tape.
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Corporate Finance Model Source Fortran Program: A Computer Program for Discounted Cash Flow Analysis, Final Version.
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Three Files of Source Programs for Transportation Model - Report for 30 Jan - 30 Jun 70.
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Multiphasic Buffer Systems (Systems Output Tape No. 8).
PB-196 092/1 4 CP **T03**

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Electronic Computer Program for Stereocomparator Coordinater Reduction (TIES Computer Program No. R-0100).
PB-198 589/4 3 CP **T03**

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Electronic Computer Program for Analytical Strip Triangulation (TIES Computer Program No. R-0300).
PB-198 593/6 3 CP **T02**

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Transoceanic Cargo Study: Forecast Model Research Study; Computer Program.
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Transoceanic Cargo Study: Distribution Cost Model Research Study; Computer Program.
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Multiphasic Buffer Systems (Fortran Retrieval Program).
PB-203 016/1 4 CP **T03**

PB-208 753/4
Air Quality Implementation Planning Program (IPP) Computer Program Tape.
PB-208 753/4 9 CP **T03**

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SURGE 72 Cobol Generator
PB-214 156/2 7 CP **T04**

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Mathematical Simulation of Ammonia Stripping Towers for Wastewater Treatment.
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Simulation of the Time-Dependent Performance of the Activated Sludge Process Using the Digital Computer.
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Preliminary Design and Simulation of Conventional Wastewater Renovation Systems Using the Digital Computer.
PB-219 471/0 9 CP **T03**

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A Generalized Computer Model for Steady-State Performance of the Activated Sludge Process - Final Version.
PB-219 473/6 9 CP **T03**

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Intercity Transportation Effectiveness Model, Documentation Volume II. Final Computer Programs, Book 5 of 5, Appendix A.3.
PB-219 779/6 16 CP **T05**

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Intercity Transportation Effectiveness Access/Assignment Model. Computer Program, Source Tape Transmittal.
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Magnetic Tape Containing Average Elevations of Topography in California and Adjacent Regions for Areas of 1x1 Minutes in Size.
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Myasthenia Gravis Computer Program for Analysis of Pupil Response to a Light Stimulus.
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SIGOP: Traffic Signal Optimization Program Source Tape
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Wastewater Treatment Plant Cost Estimating Program.
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Executive Digital Computer Program for Preliminary Design of Wastewater Treatment Systems.
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BUDAK Program Documentation, -XY to Geographic Coordinates-Version 1.
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TRANSYT Method for Area Control Program.
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DCRT Data Management System. RMAG Computer Programs
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DOS/HASP Support System for Remote Terminals or for Batch Processing
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Urban Traffic Control System FORTRAN 4 Source Program and Benchmark Tape.
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A Computer Program for Estimating Costs of Tunneling (COSTUN).
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Bureau of Labor Statistics Seasonal Factor Method (1966) Seast. FORTRAN IV Computer Program.
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Longley's Normalized Modified Gram-Schmidt Algorithm Linear Least Square Regression Analysis (six programs).
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General Tabulation System (GT)-Computer Program.
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FAST: File Analysis and Selection Technique.
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Culvert Outlet Protection Design: Source Program, Sample Date, and Sample Output
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DAMS2, Project Formulation - Structure Site Analysis,
PB-233 777/2 5 CP **T03**

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Project Formulation - Hydrology, Computer Program.
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SCERT Model Building System.
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RMAG21. Version 21 mod 6.
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APS-73 Cross Assembler.
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Photochemical Air Quality Simulation Models.
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ICDA-6 Abbreviations Tape, List Program and Update Program.
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USAC Treasury Management Municipal COBOL Computer Program Module Magnetic Tape.
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USAC Purchasing Municipal COBOL Computer Program Magnetic Tape.
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USAC Payroll/Personnel Municipal COBOL Computer Program Module Magnetic Tape.
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USAC Resource Management Municipal COBOL Computer Program Module Magnetic Tape.
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USAC General Revenue Municipal COBOL Computer Program Module Magnetic Tape.
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USAC Utility Billing COBOL Computer Program Module Magnetic Tape.
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Relocation Services Municipal COBOL Computer Programs Module Technical Tape.
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Geographic Data Index Maintenance Municipal COBOL Computer Programs Module Technical Tape.
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Nerve Membrane Model.
PB-243 847/1 1 CP **T03**

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Rotate and Scale (ROTSAL) Program for Cartographic Application.
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Graphic Data Presentation and Edit Program (GADPET) for Interactively Displaying and Editing Map Data on the IBM 2250 CRT Terminal.
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Project RMAG. Logic Subroutines.
PB-246 203/4 7 CP **T03**

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Radioimmunoassay Data Processing: Listings and Documentation. Third Edition: Volumes I and II and Programs.
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Project RMAG. Arithmetic Subroutine.
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USAC Geographic Based Index System (GBIS) - Municipal COBOL Computer Programs Module Magnetic Tape. Release No. 1.
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Energy Supply Planning Model, System Tape.
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Energy Supply Planning Model, Card Image Version.
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The Nursing Home Simulation Model User's Manual - FORTRAN IV Version (Software Tape).
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The Nursing Home Simulation Model User's Manual - Simscript 1.5 Version (Software Tape).
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A Computer Model to Determine Low Cost Techniques to Comply with the Privacy Act of 1974.
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Purchase Order Processing System (POPS). Release No. 1.
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Wichita Falls, Texas USAC Vehicle Maintenance Module.
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TV and FM Broadcasting Field Strength (TVFMFS) Computer Program.
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Wilderness Area User's Simulation Model (WAUSM), 1975.
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Data Dictionary System - Municipal COBOL Computer Programs Module Magnetic Tape. Release No. 1.
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Special Assessments - Municipal COBOL Computer Programs Module Magnetic Tape. Release No. 1.
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System Status Summary - Municipal COBOL Computer Programs Module Magnetic Tape. Release No. 1.
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Hospital Management Systems Demonstration.
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Violation Information Processing System (VIP) - Municipal COBOL Computer Programs Module Magnetic Tape. Release No. 1.
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Project Management System (PMS) Through the Use of the Critical Path Method (CPM).
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Law Enforcement Subsystem - Municipal COBOL Computer Programs Module Magnetic Tape.
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Internal Charges and Cash Receipts System - Municipal COBOL Computer Programs Module Magnetic Tape.
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Fire Control System-Municipal COBOL Computer Programs Module Magnetic Tape.
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Water Utility System (WUPSO) - Municipal COBOL Computer Programs Module Magnetic Tape. Release No. 1.
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Emergency System Simulator (ESSIM): Overview, User's Guide, Simulator Program Listing, and Report Writer Program Listing (Software Tape).
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Data Entry System - Municipal ALC/COBOL Computer Programs Module Magnetic Tape. Release No. 1.
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A FORTRAN Routine Reorganizer.
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A Model for Calculating Effects of Liquid Waste Disposal in Deep Saline Aquifers.
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Emergency Service Deployment Models and Demonstration Data Bases.
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Patrol Car Allocation Model (PCAM). Release 13.
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Hypercube Queuing Model. Release 1.0.
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Firehouse Site Evaluation Model. Release 3.
PB-259 883/7 10 CP T06

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Parametric Allocation Model. Release 1.0.
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Program for Determining the Travel Characteristics of Emergency Service Vehicles. Release 1.0.
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Simulation Model of Fire Department Operations. Release 1.0.
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WSP2 - Water Surface Profile Computer Program.
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The Telecommunication/Data Management System (TCDMS) IBM Assembly Language Computer System Magnetic Tape, Release No. 3.
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WATEQF - A FORTRAN Version of WATEQF, a Computer Program for Calculating Chemical Equilibrium of Natural Waters.
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Key Word Index.
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SYSTEM 4204 - A Generalized Series of Summary Programs Generating Direct Expansions, Standard Errors, Coefficients of Variation and Correlation Coefficients
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LARPP (Los Angeles Reactive Pollutant Program) Data Retrieval Program - IBM Version.
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Marginal Cost and Pricing of Electricity: An Applied Approach (Computer Programs). Release No. 1.
PB-263 953/2 8 CP T03

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National Weather Service River Forecast System, Model Program Containing Sacramento Model.
PB-264 153/8 15 CP T03

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Synoptic Rainfall Data Analysis Program (SYNOP). Release No. 1.
PB-264 562/0 17 CP T04

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A Master Environmental Control and Mine System Design Simulator for Underground Coal Mining.
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WATSIM - A Fortran Program for 24 Hour Simulation of Flows and Reservoir Fluctuations in Water Distribution Networks.
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Prototype Software for On-Line Storage Forecasting Supported by Load Forecasting and Reduced System Representation for Water Distribution Systems.
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Five-Year Lease Versus Cost Analysis.
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NBSLD (National Bureau of Standards Load Determination), The Computer Program for Heating and Cooling Loads in Buildings. Release No. 1.
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BUDAK Program Documentation, -XY to Geographic Coordinates-Version 1.
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The Telecommunication/Data Management System (TCDMS) IBM Assembly Language Computer System Magnetic Tape, Release No. 3.
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NBSLD (National Bureau of Standards Load Determination), The Computer Program for Heating and Cooling Loads in Buildings. Release No. 1.
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Fortran Programs for Text Editing, File Manipulating, and Automatic Typesetting.
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NBS Minimal Basic Test Programs, Version 2.
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NATIONAL CENTER FOR HEALTH SERVICES RESEARCH, ROCKVILLE, MD.

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The Nursing Home Simulation Model User's Manual - Simscript 1.5 Version (Software Tape).
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The Nursing Home Simulation Model User's Manual - FORTRAN IV Version (Software Tape).
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NCHSR-76/283

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NIH-JOV-CHR-9

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Bureau of Labor Statistics Seasonal Factor Method (1966) Seast. FORTRAN IV Computer Program.
PB-230 425/1 2

Longley's Normalized Modified Gram-Schmidt Algorithm Linear Least Square Regression Analysis (six programs).
PB-230 443/4 13

Culvert Outlet Protection Design: Source Program, Sample Date, and Sample Output
PB-232 796/3 5

DAMS2, Project Formulation - Structure Site Analysis,
PB-233 777/2 5

ECON2 - Project Formulation - Economics,
PB-233 781/4 5

Radioimmunoassay Data Processing: Listings and Documentation. Third Edition: Volumes I and II and Programs.
PB-246 222/4 1

The Nursing Home Simulation Model User's Manual - FORTRAN IV Version (Software Tape).
PB-249 491/2 11

WSP2 - Water Surface Profile Computer Program.
PB-260 750/5 15

WATEQF - A FORTRAN Version of WATEQF, a Computer Program for Calculating Chemical Equilibrium of Natural Waters.
PB-261 026/9 4

SYSTEM 4204 - A Generalized Series of Summary Programs Generating Direct Expansions, Standard Errors, Coefficients of Variation and Correlation Coefficients
PB-263 474/9 13

Marginal Cost and Pricing of Electricity: An Applied Approach (Computer Programs). Release No. 1.
PB-263 953/2 8

National Weather Service River Forecast System, Model Program Containing Sacramento Model.
PB-264 153/8 15

X-11 Quarterly Seasonal Adjustment Program.
PB-272 683/4 2

X-11 Monthly Seasonal Adjustment Program.
PB-272 704/8 2

HUD Residential Solar Economic Performance Model.
PB-273 592/6 2

SAAM27, Simulation, Modeling and Data Fitting Program for UNIVAC.
PB-276 750/7 13

SAAM27, Simulation, Modeling and Data Fitting Program for IBM.
PB-277 248/1 13

Kalker's Simplified Nonlinear Creep Theory (Complete Solution).
PB-285 467/7 4

Kalker's Simplified Nonlinear Creep Theory (Subroutine Forces).
PB-285 468/5 4

A Mathematical Model of Electrostatic Precipitation: Revision 1.
PB-285 349/6 9

NMGS2, a Multiple Regression Program
PB-290 474/6 7

Advancement of Mine Ventilation Network Analysis from Art to Science.
PB-292 927/1 15

The Sandia Waste Isolation Flow and Transport (SWIFT) Model.
PB-294 807/3 15

Methane-Water Flow in Coalbeds.
PB-297 342/8 15

A Pavement Design and Management System for Forest Service Roads - Implementation.
PB-297 797/3 5

Kalker's 'Exact' Nonlinear Creep Theory
PB-299 312/9 4

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Computer Program File for the Report: Implementation and Evaluation of the Multi-regional Input-Output Model of the United States.
COM-73-10534/8 2

VIEWGRAPH - Conversational Computer Graphics Program.
PB81-151110 7

SHADED PIE - Conversational Computer Graphics Program,
PB81-151136 7

EZ-PLOT - Conversational Computer Graphics Program.
PB81-151151 7

Road Design System (RDS).
PB81-217424 5

FCC Coordination Contour Program for Domestic Satellite Earth Stations.
PB-241 628/7 6

TV and FM Broadcasting Field Strength (TVFMFS) Computer Program.
PB-251 129/3 6

RADIAT Computer Program
PB-260 426/2 6

Five-Year Lease Versus Cost Analysis.
PB-266 741/8 2

Graphic Improvement Software Transformation System.
PB-274 071/0 3

Geographic Depiction and Statistical Evaluation.
PB-274 605/5 3

Plotter System Subroutines for the UNIVAC 1108.
PB-275 185/7 7

String and Character Manipulation Routines for Univac 1108 Fortran Users.
PB-275 187/3 7

Planar Pinned Truss Analysis
PB-275 384/6 5

Computer Output Microfilm Generator.
PB-277 362/0 7

Free Format Reading Routine.
PB-294 694/5 7

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End Use Energy Consumption Data Base: Transport Sector Retrieval Program.
PB81-112179 8

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Computer Directed Training System (CDTS).
PB81-210336 10

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MIL-STD 1750 Interpretive Computer Simulator.
PB81-183089 7

AN/AYK-15A (MIL-STD) 1750) Interpretive Computer Simulator.
PB81-183121 7

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ILS (integrated Library System).
PB80-202658 12

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PILOT (LHC 8080).
PB81-233934 1

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PDP-11 Macro Cross Assembler
AD-A030 212/5 7

Total Structure Verifier System (TSVS)
AD-A102 565/9 7

ADTECH - Impact of Administrative Technology on Acute Bed Need.
PB81-160491 11

Evaluation of Findings from Nurse Practitioner and Physician Assistant Studies: PE Aggregate Data File and Related Software.
PB81-196453 11

Hospital Management Systems Demonstration.
PB-252 536/8 11

Emergency System Simulator (ESSIM): Overview, User's Guide, Simulator Program Listing, and Report Writer Program Listing (Software Tape).
PB-254 202/5 11

Emergency Service Deployment Models and Demonstration Data Bases.
PB-259 880/3 10

Hypercube Queuing Model. Release 1.0.
PB-259 882/9 10

Parametric Allocation Model. Release 1.0.
PB-259 884/5 10

Hospital Management Systems Demonstration Program Tape: Final Report.
PB-280 662/9 11

BEST1: BESTOP to PL/1 Language Converter.
PB-281 852/4 7

Master, Random, Hex and Search Program for Dumping Sequential Files.
PB-289 158/8 7

RMAGASM

Project RMAG. Logic Subroutines.
PB-246 203/4 7

Project RMAG. Arithmetic Subroutine.
PB-246 643/1 7

Symbolic Logic Retrieval (SLR).
PB-281 372/3 7

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MLAB: An On-Line Modeling System.
PB80-125354 7

SETL

Ada/Ed (NYU)
AD-A101 670/8 7

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Simulation and the Airport Problem: Computer Simulation Programs.
PB-182 155/2 16

SIMSCRIPT II.5

Emergency Service Deployment Models and Demonstration Data Bases.
PB-259 880/3 10

SIMSCRIPT 1.5

The Nursing Home Simulation Model User's Manual - Simscript 1.5 Version (Software Tape).
PB-249 492/0 11

Simulation Model of Fire Department Operations. Release 1.0.
PB-259 886/0 10

SIMSCRIPT 2.5

Simulation Model of Police Patrol Operations. Release 1.0.
PB-259 887/8 10

SIMSCRIPT I.5

Emergency Service Deployment Models and Demonstration Data Bases.
PB-259 880/3 10

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Table Producing Language (TPL), Version 4.0.
PB-285 756/3 13

SOFTWARE ON ADTS/ADP SCHEDULE

Each year General Services Administration negotiates contracts for computer software packages for placement on the ADTS/ADP Schedule. Use of schedule contracts for software vastly reduces procurement cycle time and administrative costs. Federal agencies may procure software on the ADTS/GSA schedule without prior approval by GSA when the purchase/delivery order is placed under the terms and conditions of the contract and in accordance with Federal Procurement Regulation 1-4.1104-6.

The following section has been included in this catalog as an additional service to Federal agencies. The section contains abstracts of software on the ADTS/ADP schedule submitted by those vendors electing to be listed in this section.

Specific information regarding the software in this section should be obtained directly from the vendor supplying the product. The name, address, and phone number of the company are listed with each abstract.

Information regarding other software packages on the ADTS/ADP Schedule should be directed to:

Schedule Contracts Branch (CDPS)
General Services Administration
Room G-219A
18th & F Streets, N.W.
Washington, DC 20405

Telephone: (202) 566-1106
Telephone: FTS 8-566-1106

THIS IS NOT A COMPLETE LIST

Application Development System Batch

Software. ADS/Batch is an integrated batch application development system that centralizes the task of validating transaction files and updating an IDMS database. In an ADS/Batch environment, the application is primarily concerned with database updating. Input definition, editing specifications, and error checking are centrally controlled and automatically performed. When modifications are made to the transaction file format, the user defines those modifications once to ADS/Batch; the modified view of the transaction file format is automatically available to all applications through the use of an active data dictionary.

Software Description: Manf = Most large scale computers, Type = System, Mode = Inter/Batch, Appl = Non-specific.

Contact: Cullinane Database Systems, Inc., 400 Blue Hill Drive, Westwood, MA 02090, Ms. Linda J. Lucey (617) 329-7700, ext. 176.

Barrister Integrated Word Processing, Accounting and Records Management System

Software. Barrister Office Management Systems integrate word processing, financial management and information processing into one system. They can also be used as a one function system, if desired. Developed for the legal profession, Barrister Systems support the following software programs: Word Processing, Attorney Time and Disbursement Accounting, General Ledger Accounting, Collections, Accounts Payable, Conflict of Interest Checking, Docketing, Records Management, Litigation Support. Barrister Systems are modular and easily expandable to conform to the growth demands of clients. All systems are available with Communications, Optical Character Readers, High Speed Lineprinters, Magnetic Tape Units, Interface to IBM 6670 Information Distributor or IBM 6640 Document Printer, or Interface to TWX or Telex unit.

Software Description: Manf = Data General Nova, Eclipse, System = BSOP, ESOP, Type = System, Mode = Inter/Batch, Appl = Bibliographic/Textual, Management/Business, Litigation Support, Word Processing, Accounting, Records Management, Lang = Trial, FORTRAN, BAL, Memory = 64K to 1MB, Drives = 9 track, 800-1600bpi, Disk = 16-300MB, Term = VDT, Typewriter.

Contact: Comptek Research Inc., 45 Oak Street, Buffalo, NY 14203, Mr. Kenneth Young, (716) 842-2700.

Business Graphics Package

Software. This package is designed to provide all levels of business management with easy to read visual charts and graphs depicting current trends utilizations, and allocations which affect their business. By replacing or supplementing voluminous statistical printouts with graphic reports, the evaluating of such things as sales trends, market comparisons and overhead expenditures become a simple task. Advantages are: 1) high quality charts and graphs produced; 2) reduction of paper volume that must be examined to obtain desired information; 3) reduction in the amount of time needed to evaluate the data; 4) repetitive reports are produced automatically; 5) manually produced charts can be eliminated.

Software Description: Manf = Most large scale computers, Type = Program, Mode = Batch, Appl = Management/Business, Lang = FORTRAN IV, Memory = 512K, Disk = one.

Contact: Dasd Corporation, 9045 North Deerwood Drive, Milwaukee, Wisconsin 53223, Mr. Thomas A. Patti, Vice-President, Market Development, (414) 355-3405.

CARS

Software. CARS accepts user parameters containing file specifications and record selection parameters, and generates a customized COBOL source program for extracting records from multiple files. It accomodates all file and database structures. Output includes data files, free-format reports, and confirmation letters. No reformatting of input files is required, nor is a dictionary required. Records can be extracted based on conditional relationships with parameters, sequential intervals based on specified or random starting points, and 3 types of random selections. Arithmetic procedures are provided to do complex calculations, and automatic totalling features are standard with the package. Additional capabilities of CARS include: file-matching, Bypass facilities, extensive sorting features (both input and output sorting), multiple free-format report generation, new file creation, table handling, and user-defined coding if desired. Other system capabilities include parameter extraction, statistical sampling, aging frequency distribution, computation, multiple file handling, and confirmation preparation.

Software Description: Manf = Most large scale computers, Type = System, Mode = Inter/Batch, Appl = Non-specific.

Contact: Cullinane Database Systems, Inc., 400 Blue Hill Drive, Westwood, MA 02090, Ms. Linda Lucey (617) 329-7700, ext. 176.

CCP to CICS Translator

Software. Using DADS's RPG/RPG II to Cobol translator as a basis, this translator also converts the SYSTEM/3 RPG II Communications Control Program (CCP) programs to corresponding CICS/VS Command Level Cobol programs. Additionally, all SYSTEM/3 Display Format Facility (DFF) screen definitions are converted directly to Basic Mapping

Support (BMS) macro definitions and integrated into the Cobol programs. Features of the translator include Cobol program modularity, CICS/VS Command Level file access techniques, data name retention, 88-level indicator testing and program optimization.

Software Description: Manf = IBM 370, System = OS, Type = Program, Mode = Batch, Appl = Other, Lang = PL/1, Memory = 1284K, Disk = one.

Contact: Dasd Corporation, 9045 North Deerwood Drive, Milwaukee, Wisconsin 53223, Mr. Thomas A. Patti, Vice-President, Market Development, (414) 355-3405.

Central Version

Software. The CV option of the IDMS system allows any number of tasks to concurrently use a single copy of the DBMS. The CV, which provides multitasking, threads all calls from application programs in other partitions or regions to the DBMS. The CV also includes an automatic recovery feature which will roll out the effect of a program that abends in the CV environment.

Software Description: Manf = Most large scale computers, System = OS, VS, MVS, DOS/VS(E), VM, Type = System, Mode = Inter/Batch, Appl = Non-specific, Lang = COBOL, PL/1, ASSEMBLER, FORTRAN, Memory = 250K, Drives = one, Disk = one.

Contact: Cullinane Database Systems, Inc., 400 Blue Hill Drive, Westwood, MA 02090, Ms. Linda Lucey (617) 329-7700, ext. 176.

Cobol to Cobol Translator

Software. The Cobol to Cobol Translator facilitates conversion between many vendors including Burroughs, GE, Honeywell, IBM, NCR, Prime and Univac. The utility converts most Cobol language elements. Principal areas of change include SELECT clauses, FD's, data usages and I/O statements. The programs are completely rewritten in a standard readable format. All items affected by the translator are flagged in an output Cobol listing. A list of the input is also available.

Software Description: Manf = IBM 370, System = OS, Type = Program, Mode = Batch, Appl = Other, Lang = PL/1, Memory = 1024K, Disk = one.

Contact: Dasd Corporation, 9045 North Deerwood Drive, Milwaukee, Wisconsin 53223, Mr. Thomas A. Patti, Vice-President, Market Development, (414) 355-3405.

Cobol ISAM to Cobol VSAM Translator

Software. This translator is designed to fulfill the requirement of converting IBM ANS COBOL source programs that access non-VSAM files to programs that utilize native-mode VSAM processing techniques. Based on selection criteria supplied by the user, files in the COBOL programs are converted from sequential, indexed or relative access methods to corresponding VSAM ESDS, KSDS, or RRDS methods. Program conversion functions include: 1) revision of SELECT statements; 2) revision of FD statements; 3) revision of all file references to use file statue; 4) techniques; 5) complete program reformatting.

Software Description: Manf = IBM 370, System = OS, Type = Program, Mode = Batch, Appl = Other, Lang = PL/1, Memory = 1024K, Disk = one.

Contact: Dasd Corporation, 9045 North Deerwood Drive, Milwaukee, Wisconsin 53223, Mr. Thomas A. Patti, Vice-President, Market Development, (414) 355-3405.

CULPRIT

Software. CULPRIT is both an easy to use management tool for ad-hoc reporting and a sophisticated retrieval system designed to meet daily production requirements. The operations of CULPRIT are controlled by free-form parameters which describe the input, processing and output. These parameters are used to generate the machine code which is executed to produce the report requests. CULPRIT is capable of preparing up to 100 reports in one pass of the input file, even though the reports are independent and unrelated. Each report can be sorted in ascending or descending order on a field-by-field basis. All popular file capabilities include multiple heading, detail, and subtotal/total lines, full of arithmetic and logical processing facilities, global or detail record selection, built-in work fields, automatic or user-specified output formatting, file matching (any number and type of input files), table lookup, graphical output, and field subscripting. CULPRIT is fully compatible with Cullinane's IDD and ID products, as well as LIBRARIAN and PANVALET, assuring standardization and accuracy of information.

Software Description: Manf = Most large scale computers, System = OS, DOS, VS(E), Counterparts, Type = System, Mode = Inter/Batch, Appl = Non-specific, Memory = 100K.

Contact: Cullinane Database Systems, Inc., 400 Blue Hill Drive, Westwood, MA 02090, Ms. Linda Lucey (617) 329-7700, ext. 176.

DIBOL to Cobol Translator

Software. The package converts DEC DIBOL to ANS COBOL for a variety of manufacturers including Data General and IBM. All data division constructs and most batch procedural instructions are handled. The translator performs global analysis in order to generate the required SELECT clauses and associated file definitions. The utility can detect and convert most DIBOL programming techniques including rounding, field editing, subscripting and substringing. both the input DIBOL and output COBOL are listed by the converter along with diagnostic messages highlighting any untranslated operation codes. Sequence numbers are associated with each input and output statement to facilitate any manual review.

Software Description: Manf = IBM 370, System = OS, Type = Program, Mode = Batch, Appl = Other, Lang = PL/1, Memory = 1024K, Disk = one.

Contact: Dasd Corporation, 9045 North Deerwood Drive, Milwaukee, Wisconsin 53223, Mr. Thomas A. Patti, Vice-President, Market Development, (414) 355-3405.

Distributed Database System

Software. Distributed Database System (DDS) enables the Cullinane user to maintain IDMS databases at each location in his network and yet make the data available on a demand basis to any network node. The system requires the use of the IDMS central version at each distributed location to function as the "host" node for those applications wishing to make requests of remote databases. No preconfiguration of the system is required. DDS dynamically configures itself as various nodes sign on and off the network. Since all nodes in the network know about all other nodes, DDS is able automatically to route requests to their "target" nodes. DDS nodes may be connected by mean of an SVC (if both nodes are within the same CPU), channel-to-channel adapter or telecommunication line. The TP access method may be BTAM (for BSC) or VTAM. DDS is fully integrated with all the Cullinane products.

Software Description: Manf = Most large scale computers, System = OS, DOS/VS(E) Counterparts, Type = System, Mode = Inter/Batch, Appl = Non-specific.

Contact: Cullinane Database Systems, Inc., 400 Blue Hill Drive, Westwood, MA 02090, Ms. Linda Lucey (617) 329-7700, ext. 176.

DMS Interface

Software. The IDMS/DMS Interface provides the ability to access and update the IDMS database in the online CICS DMS/VS environment. The interface consists of both batch and online components. Batch components are used to prepare database descriptions specifying the IDMS record types and database navigation paths available for use with a DMS panel. The online components communicate with the IDMS central version to access database record ocurrences, based on the database description in use and function codes entered by the terminal user. Online interface functions are built-in, the terminal user need not be familiar with IDMS DML commands, as these are issued by the interface. The interface is implemented as a DMS user file processor module, allowing the use of DMS panel exit facilities. All online transactions using the DMS Interface are pseudo-conversational, providing efficient use of CICS and IDMS central version resources.

Software Description: Manf = Most large scale computers, Type = System, Mode = Inter/Batch, Appl = Non-specific.

Contact: Cullinane Database Systems, Inc., 400 Blue Hill Drive, Westwood, MA 02090, Ms. Linda Lucey (617) 329-7700, ext. 176.

DOS ALC to OS ALC Translator

Software. The translator simply and effectively converts DOS Assembler Language programs to OS. Provisions are made to easily accommodate user written macros and I/O routines. some of the translator's features include: at program initialization, a routine is inserted which will save all appropriate registers, areas and addresses to comply with the standard OS conventions. Register 13, if used by the DOS program, is protected to prevent any conflict between DOS usage and OS conventions. Program termination is controlled by ad OS return macro in place of the DOS EOJ. All DOS macros are converted to OS macros.

Software Description: Manf = IBM 370, System = OS, Type = Program, Mode = Batch, Appl = Other, Lang = PL/1, Memory = 768K, Disk = one.

Contact: Dasd Corporation, 9045 North Deerwood Drive, Milwaukee, Wisconsin 53223, Mr. Thomas A. Patti, Vice-President, Market Development, (414) 355-3405.

DOX—Console Management System

Software. DOX is an operator console support package providing vastly improved system performance, operator productivity, control, and security. The system supports multiple enhanced operator consoles, an online system status display, user-defined operator command sequences, dynamic routing of console messages, user-defined program function keys, and true spooling of console message traffic. DOX provides the tools to enable your computer operator to increase his productivity while improving the throughput, security, and control of the entire computer system. The end result is consistently better service to your users.

Software Description: Manf = IBM 360, 370, 4300, 303X, System = DOS, DOS/VS, DOS/VSE, Type = Program, Mode = Combination, Appl = Support/Utility, Lang = Assembler.

Contact: SDI, 1700 S. El Camino Real, San Mateo, CA 94404, (415) 572-1200.

EDP-AUDITOR

Software. EDP-AUDITOR is a specialized version of the vendor's CULPRIT report generator that is designed to be used by auditors or auditing departments. Supplied with a library of more than 80 special audit routines, EDP-AUDITOR can access any file or database structure, match any number of files, and produce up to 100 reports in a single pass. Twenty sort fields, unlimited subtotal levels, automatic headings, automatic report formatting and an extensive library includes footing, exception, summary, confirmation, statistical sampling, SMP and graphic capabilities. EDP-AUDITOR is a member of Cullinane's Audit Information Management System (AIMS), which utilizes a central Information Directory to assure standardization and accuracy of information.

Software Description: Manf = Most large scale computers, System = OS, DOS, VS(E) Counterparts, Memory = 100K.

Contact: Cullinane Database Systems, Inc., 400 Blue Hill Drive, Westwood, MA 02090.

EDP-AUDITOR/3

Software. EDP-AUDITOR/3 is a generalized information retrieval package available for use with IBM's System/3 small business computer. It is designed for use by non-EDP personnel as well as by pro-

grammers. The package incorporates several audit options, including aging, sampling, confirmation, and new file creation. The types of reports that can be generated with EDP-AUDITOR/3 are almost unlimited in scope and number. Scheduled production reports and ad-hoc reports can be produced and maintained effectively. Output from EDP-AUDITOR/3 can be produced and maintained effectively. Output from EDP-AUDITOR/3 can be in the form of printed reports, cards, tape, or disk. The system has the ability to produce up to three free-form reports in a single run.

Software Description: Manf = Most large scale computers, Type = System, Mode = Inter/Batch, Appl = Non-specific Memory = 16K.

Contact: Cullinane Database Systems, Inc., 400 Blue Hill Drive, Westwood, MA 02090, Ms. Linda Lucey (617) 329-7700, ext. 176.

ESCAPE

Software. ESCAPE permits application programs which are coded to use non-IDMS database systems to access data in an IDMS database. No coding changes are required in the application programs. At execution time, calls to the non-IDMS database system are converted by ESCAPE into the equivalent calls to IDMS. Results are returned to the application programs in the form expected from the non-IDMS database system. ESCAPE includes facilities for conversion of existing databases into equivalent IDMS without requiring any program conversion activities. ESCAPE also allows users to employ commercially available application packages that are coded for non-IDMS database systems to be used with IDMS as OnLine Query and the Integrated Data Dictionary can then be utilized.

Software Description: Manf = Most large scale computers, System = OS, VS, MVS, DOS/VS, DOS/VS(E), VM, Type = System, Mode = Inter/Batch, Appl = Non-specific, Lang = COBOL, ASSEMBLER.

Contact: Cullinane Database Systems, Inc., 400 Blue Hill Drive, Westwood, MA 02090, Ms. Linda Lucey (617) 329-7700, ext. 176.

Fortran to Fortran Translator

Software. This product facilitates the conversion of FORTRAN programs between a variety of vendors including IBM and CDC. The translators capabilities include: program reformatting, statement renumbering, and cross reference of data names. Syntactical differences between vendors are detected and converted to industry standard. Various options available in the translator allow the user to customize the generated code for his own installation.

Software Description: Manf = IBM 370, System = OS, Type = Program, Mode = Batch, Appl = Other, Lang = PL/1, Memory = 1024K, Disk = one.

Contact: Dasd Corporation, 9045 North Deerwood Drive, Milwaukee, Wisconsin 53223, Mr. Thomas A. Patti, Vice-President, Market Development, (414) 355-3405.

IDMS-Data Communications

Software. IDMS-DC is a full function teleprocessing monitor, which is fully integrated with IDMS-DB and the Integrated Data Dictionary. IDMS-DC efficiently handles all standard teleprocessing functions such as terminal I/O operations, dynamic allocation of storage and processing task control. The architecture of the system takes advantage of the latest innovations in hardware and operating sytems in order to provide an efficient, integrated DB/DC system capable of handling high data and transaction volumes. IDMS-DC supports 3270-type terminals, both local and remote, as well as teletype-compatible terminals and 2741 terminals. Access methods supported are BTAM, VTAM, and TCAM. Among the unique features of IDMS-DC are its online map generation mechanisms, and universal communication facility. IDMS-DC supports Cullinane's Distributed Database System, Application Development System/OnLine, OnLine Query, OnLine English, and the Integrated Data Dictionary, as well as user application programs coded in a high-level extension of COBOL, PL/1 or Assembler.

Software Description: Manf = Most large scale computers, System = OS, DOS, VS(E) Counterparts, Type = System, Mode = Inter/Batch, Appl = Non-specific, Lang = COBOL, PL/1, Assembler, Memory = 300-800K.

Contact: Cullinane Database Systems, Inc., 400 Blue Hill Drive, Westwood, MA 02090, Ms. Linda Lucey (617) 329-7700, ext. 176.

Information Directory

Software. The Information Directory (ID) is an integrated data dictionary for use with Cullinane's Audit Information Management System (AIMS). ID is a central control file that integrates all present and planned AIMS components. Within the ID, an installation stores, documents, secures, and relates all user, system, file, record, data element, and other informational entities describing the data processing environment. These centralized definitions are then accessed by Cullinane's EDP-AUDITOR, CULPRIT, OnLine Query, and other products assuring standardization and accuracy of information. An extensive set of detail, summary, and cross-reference reports is included with the Information Directory.

Software Description: Manf = Most large scale computers, System = OS, DOS, VS(E) Counterparts, Type = System, Mode = Inter/Batch, Appl = Non-specific, Memory = 250K.

Contact: Cullinane Database Systems, Inc., 400 Blue Hill Drive, Westwood, MA 02090, Ms. Linda Lucey (617) 329-7700, ext. 176.

INSTANT—FBA—Universal Disk Device Compatibility

Software. Instant-FBA is designed to eliminate program dependence upon specific physical DASD device types. Instant-FBA allows of any type of disk device ofr data storage without regard to the internal limitations or restrictions of your programs and disk access methods. The system uses the DASD devices available on the host computer to transparently emulate the device types required

by your software. Programs written for DOS/VSE and DOS/VS are device dependent. Subsequent use of another DASD technology or disk type requires program alterations and, in some cases, conversion from one disk access method to another. Instant—FBA completely eliminates the need for these program changes, allowing effortless migration across disk types or technologies. The system will support any number of "virtual" disks of any type desired (2311, 2314, 3330, 3340, 3350, 3310, 3370, 3375 or 3380). Virtual disks can be configured in any mixture of device types required by the user. Each virtual disk can be defined as full size or as small as one cylinder, depending upon the amount of space of that type required. Each virtual disk is created from a single extent or real disk space, which itself can be of any type (2311, 1214, 3330, 3340, 3350, 3310, 3370, 3375, or 3380).

Software Description: Manf = IBM 360, 370, 4300, 303X, System = DOS, DOS/VS, DOS/VSE, Type = Program, Mode = Combination, Appl = Support/Utility, Lang = Assembler, Memory = 48K+, Disk = Any.

Contact: SDI, 1700 S. El Camino Real, San Mateo, CA 94404, (415) 572-1200.

Integrated Data Dictionary

Software. The Integrated Data Dictionary is designed to provide complete corporate data dictionary facilities for all organizational data, both database and conventional files. IDD operates in conjunction with user programming languages (COBOL, Assembler, FORTRAN and PL/1) to establish all necessary data descriptions in application source programs. The IDD allows the user to create and maintain a centralized resource for the capture and control of data definitions and interrelationships by management and administrative personnel. The system includes such features as: data definition by means of an English language-like Data Dictionary Definition Language (DDDL), intelligent preprocessors for COBOL, PL/1, Assembler and FORTRAN source programs a group of 88 standard dictionary reports with the capability for extra specialized reports, batch and on-line update/reporting, and unlimited user-defined entities. All other Cullinane products make use of the centralized dictionary definitions, assuring standardization and accuracy of information.

Software Description: Manf = Most large scale computers, System = OS, VS, MVS, DOS/VS, DOS/VSE, VM, Type = System, Mode = Inter/Batch, Appl = Non-specific, Lang = COBOL, ASSEMBLER, PL/1, FORTRAN.

Contact: Cullinane Database Systems, Inc., 400 Blue Hill Drive, Westwood, MA 02090, Ms. Linda Lucey (617) 329-7700, ext. 176.

Integrated Database Management System

Software. The Integrated Database Management System (IDMS) is an implementation of the DOCASYL Data Base Task Group Language specification. IDMS is designed to provide Dictionary-Driven Database facilities for COBOL, PL/1, FORTRAN, ALC, and any other programming language supporting a call statement or equivalent. It operates in any IBM 360/370 OS/DOS/VS environment including 30XX, 4300 series with FBA devices, and all plug-compatible mainframes. It provides Data Manipulation Language (DML) statements which are used to store, retrieve, and manipulate data stored on random access devices. Data manipulation statements may be included anywere within the procedure coding of an application program. Before compilation, a preprocessor validates and converts all data manipulation statements into CALL statements and updates the Dictionary as appropriate. Working storage is used to establish database record I/O areas and communications between the user and IDMS. The IBM Basic Direct Access Method (BDAM)or Virtual Sequential Access Method (VSAM) is used for physical I/O between IDMS and the direct access storage device.

Software Description: Manf = IBM 360/370, System = OS, VS, MVS, DOS/VS(E), VM, Type = System, Mode = Inter/Batch, Appl = Non-specific, Lang = COBOL, PL/1, Assembler, FORTRAN, Memory = 250K, Drives = one, Disk = one.

Contact: Cullinane Database Systems, Inc., 400 Blue Hill Drive, Westwood, MA 02090, Ms. Linda Lucey (617) 329-7700, ext. 176.

INTERACT

Software. INTERACT is an outgrowth of the popular WYLBUR text editing and document generation system for IBM System/370 and compatible systems. INTERACT handles text entry, text editing, and remote job processing of batch jobs, documentxs, letters, manuals, JCL source programs, etc. Text can be entered either on-line or though conventional batch methods. Changes are displayed on the terminal as they are made. Comprehensive 3270 full-screen facilities are provided, including split-screen mode. Two or more sets of text ("active files") can be manipulated simultaneously. Interfaces to Cullinane's IDD, as well as LIBRARIAN and PANVALET, are included. Jobs submitted from a terminal can be monitored as they are being processed, and the user can examine the output before it is printed. Using its word processing feature, the user can prepare formatted, camera-ready copy of documents, letters, or manuals. The INTERACT Execute Command language can be used as a high-level foreground programming language. The system controls its own teleprocessing network, it can also interface to terminals through IDMS-DC and the VTAM access method.

Software Description: Manf = Most large scale computers, System = OS, (MVS, SVS, VSI, MVT, MFT), Type = System, Mode = Inter/Batch, Appl = Non-specific, Memory = 512K.

Contact: Cullinane Database Systems, Inc., 400 Blue Hill Drive, Westwood, MA 02090, Ms. Linda Lucey (617) 329-7700, ext. 176.

Job Control Language Translator

Software. This translator performs automatic conversion of job streams from one operating environment to another. For example, IBM SYSTEM/3 OCL to DOS/VS JCL, or IBM DOS/VS JCL

to IBM OS JCL. The translator accomplishes this task by combining existing control statements with additional information supplied by the user. The user supplied information is entered via parameter cards. These cards give the user the capability to change or insert information as needed to conform to his standards. Where possible, system utility steps, such as SORT's COPY's etc... are converted to the appropriate utility programs that exist in the new equipment.

Software Description: Manf = IBM 370, System = OS, Type = Program, Mode = Batch, Appl = Other, Lang = PL/1, Memory = 768K, Disk = one.

Contact: Dasd Corporation, 9045 North Deerwood Drive, Milwaukee, Wisconsin 53223, Mr. Thomas A. Patti, Vice-President, Market Development, (414) 355-3405.

Map to Cobol Translator

Software. Honeywell MAP source code is the input and ANS COBOL is the output. The resulting COBOL procedure division uses section level code to accommodate the translation of MAP internal sorts having I/O procedures. A common print routine is inserted into each report writing program to convert MAP carriage controls to those supported by IBM. Various warning messages are provided as part of the translator output to highlight potential problem areas within the translated programs.

Software Description: Manf = IBM 370, System = OS, Type = Program, Mode = Batch, Appl = Other, Lang = PL/1, Memory = 768K, Disk = one.

Contact: Dasd Corporation, 9045 North Deerwood Drive, Milwaukee, Wisconsin 53223, Mr. Thomas A. Patti, Vice-President, Market Development, (414) 355-3405.

MAPGEN/MAPGEN On-line CICS Productivity Aids

Software. MAPGEN is a utility program that simplifies the coding required by CICS programmers in the creation of CRT screen layouts. It eliminates the need to code BMS (Basic Mapping Support) macros; it automatically figures field lengths, calculates positions, and helps the programmer avoid coding mutually exclusive options. A brief specifications form is input to MAPGEN which produces full DFHMSD, DFHMDI and DFHMDF macro source statements and automatically prints a hardcopy of the screen image. The same choices and options available through the use of the specification form. MAPGEN can enhance productivity by eliminating coding, keypunching, and many handling errors.

Software Description: Manf = IBM 370, System = DOS,or OS, Type = Program, Mode = Combination, Appl = Support/Utility, Lang = ALC, Memory = 512K, Disk = one, Term =one.

Contact: Dasd Corporation, 9045 North Deerwood Drive, Milwaukee, Wisconsin 53223, Mr. Thomas A. Patti, Vice-President, Market Development, (414) 355-3405.

NEAT/3 to Cobol Translator

Software. This utility converts NCR NEAT/3 to Burroughs, DEC, Honeywell, IBM or NCR ANS COBOL. More than 95 percent of Level I NEAT/3 and about 70 percent of Level II is translated to COBOL. Commonly used programming techniques such as LINK/RELINK, references to internal dates and switches, and printer write statements are simulated in the generated COBOL program. The converter detects and diagnoses unusual techniques such as Level II index addressing, that may require manual revision to operate in the new equipment. Complete listings of the input NEAT/3 and output COBOL with warning messages are produced.

Software Description: Manf = IBM 370, System = OS, Type = Program, Mode = Batch, Appl = Other, Lang = COBOL, Memory = 1024K, Disk = one.

Contact: Dasd Corporation, 9045 North Deerwood Drive, Milwaukee, Wisconsin 53223, Mr. Thomas A. Patti, Vice-President, Market Development, (414) 355-3405.

OnLine English

Software. OnLine English is a true, natural English-language query system that enables users to view computer-stored information by means of simple requests. OnLine English accepts ordinary English questions and directions, interprets them into computer terminology, retrieves requested data (performing computations when necessary), and displays the response to the request. No special user training is required. OnLine English is integrated with IDMS-DC and also runs under most other TP monitors. OnLine English allows pronoun references, abbreviations, implicit field references, and provides automatic ambiguity resolutions. When necessary, OnLine English accepts queries with both single and multiple search, sort, and print criteria "and," "or," and "not" functions, and arithmetic calculations for both record selection and reporting. Many built-in "processess" provide data formatting and calculations, such as subtotals, min/max, bargraphs, and correlation analysis.

Software Description: Manf = Most large scale computers, System = OS, VS, MVS, DOS/VS, DOS/VSE, VM, Type = System, Mode = Inter/Batch, Appl = Non-specific, Memory = 400K.

Contact: Cullinane Database Systems, Inc., 400 Blue Hill Drive, Westwood, MA 02090, Ms. Linda Lucey (617) 329-7700, ext. 176.

OnLine Query Facility

Software. OnLine Query is a conversational language used to access information stored in an IDMS database or VSAM data set and to produce and format ad-hoc reports without complex programs. The system's commands can be used to aid in program development, to monitor database or VSAM data set activities, and to retrieve information to meet a variety of management and administrative needs. An integral part of the vendor's IDMS system, On-Line Query compliments other data retrieval and report generation facilities. The system includes Q-files (predefined queries), automatic headings, synonym resolution, user security, access path resolution, full Boolean capability, and integral sort verb,

offline report printing, and extensive "Help" facility to guide the new user through a query session.

Software Description: Manf = Most large scale computers, System = OS, DOS, VS(E) Counterparts, Type = System, Mode = Inter/Batch, Appl = Non-specific, Memory = 200K.

Contact: Cullinane Database Systems, Inc., 400 Blue Hill Drive, Westwood, MA 02090, Ms. Linda Lucey (617) 329-7700, ext. 176.

ORACLE

Software. ORACLE is the first commercially-proven Relational DBMS. ORACLE was first installed in June 1979, and as of Fall 1981, is now in use at over 100 sites in North America, Europe, Japan, and Australia. ORACLE's user interface is the SQL Relational Data Language. SQL is and english-like non-procedural language comprised of Query, Data Definition, Data Manipulation, and Data Control facilities. All SQL statements are available from online terminals as well as from programming languages such as COBOL, FORTRAN, etc. ORACLE is a high-performance system consisting of 100% reentrant code, allowing multiple online users to concurrently update or query one or more databases.

ORACLE features include: 1) An Integrated Data Dictionary that centrally defines all information that is stored in the database; 2) An Interactive Application Facility that allows the end-user to generate online data entry and data maintenance applications without the need for conventional programming; 3) A combination Report Writer/Word Processor that allows formatted data from the database to the interleaved with formatted test within a single report.

ORACLE is written in the "C" programming language, and is designed to be portable across operating systems and cpu processors. Version 2.3 of ORACLE is currently available on DEC PDP-11 (RSX-11M, IAS, RSTS, UNIX) and VAS-11 (VMS) hardware. Version 3 of ORACLE will be released during the first quarter of 1982 and will be operational on IBM 43xx, 370, and 303x hardware under VM/CMS and MVS.

Software Description: Manf = DEC PDP-11,VAX-11, System = VMS, RSX11M, IAS, RSTS, UNIX, Type = Program, Mode = Combination, Appl = Support/Utility, Lang = C, Memory = 150K, Disk = one, Term = one.

Contact: Relational Software, Inc., 3000 Sand Hill Road, Menlo Park, CA 94025, Mr. Bob Preger, (415) 854-7350.

REACH—Disk Space Management System

Software. REACH is a disk space management and control system providing absolute and complete control over disk resident files. REACH is unique in that it is a completely catalog-driven system. The catalog concept provides optimum flexibility in operation and installation by centralizing file definitions and characteristics in one common place rather than having this information interspersed through the hundred of JCL decks. Additional features provided by REACH include: complete disk device independence including support for ISAM files on 3330-II and 3350 disks, tape/disk device independence, complete disk audit trail reporting, contract-at-close, automatic secondary file allocations for sequential files, alternate primary allocation, automatic file scratching, partition independent job control, volume space protection, automatic calculation of sort work space, disk space utilization reporting, conditional datasets and much more. The system uses standard IBM job control and does not modify IBM components or user programs.

Software Description: Manf = IBM 360, 370, 4300, 303X, System = DOS, DOS/VS, DOS/VSE,Type = Program, Mode = Combination, Appl = Support/Utility, Lang = Assembler, Memory = 14-24K, Disk = All IBM.

Contact: SDI, 1700 S. El Camino Real, San Mateo, CA 94404, (415) 572-1200.

RPG/RPG II to Cobol Translator

Software. DASD's RPG translator accepts all types of RPG and produces ANS COBOL for a variety of manufacturers. Automatic editing, chain files, exception output, sub-routines, look ahead logic, force files, demand files, table handling, bit operations and VSAM files are only some of the RPG features handled. The output COBOL is modular in design and follows the basic RPG process cycle. RPG data and procedure names are always used unless they are COBOL reserved words.

Software Description: Manf = IBM 370, System = OS, Type = Program, Mode = Batch, Appl = Other, Lang = PL/1, Memory = 1024K, Disk = one.

Contact: Dasd Corporation, 9045 North Deerwood Drive, Milwaukee, Wisconsin 53223, Mr. Thomas A. Patti, Vice-President, Market Development, (414) 355-3405.

SAMANTHA—System for the Automated Management of Text from a Hierarchial Arrangement

Software. SAMANTHA is a computer tool for the automation of information publications. It provides the facility to create a textual information data base, validate it for consistency, arrange it into publishing sequence, and typeset it in full camera ready pages. The data base can be used for cumulations, spinoff publications, and information retrieval. The components of SAMANTHA store, update and revise text, generate computer proofs, and select, sort and organize text into publication sequence. SAMANTHA's formatting capability allows folios, running heads, and multiple columns which can be arranged within a variety of page sizes. Accented characters and alternative type styles can be specified. Output can be to the videoCOMP, line printer, Xerox 9700, and COM device. SAMANTHA uses a simple specifications language designed for non-computer personnel.

Software Description: Manf = IBM 360/370, Series, System = OS, Type = Automated Data System, Mode = Batch, Appl = Bibliographic/Textual, Lang = ALC & SAMANTHA.

Contact: Information & Publishing Systems, Inc., 4720 Montgomery Lane, Bethesda, MD 20014, Ms. Karen M. Devitt (301) 652-5424.

SDIPMS—Performance Measurement, Job Accounting, Billing

Software. SDI's performance management subsystem in composed of a set of functions designed to assist the user in defining and improving performance of the computer installation. The system provides comprehensive performance measurement information, complete job accounting, automatic user charge-back and billing facilities, dynamic partition balancing, resident transients, and a LTA accelerator. SDI's performance management subsystem does make use of the notoriously inaccurate accounting data provided by the IBM supervisor, but gaters its own statistics.

Software Description: Manf = IBM 360, 370, 4300, 303X, System = DOS, DOS/VS, DOS/VSE, Type = Program, Mode = Combination, Appl = Support/Utility, Lang = Assembler, Memory = 4K-6K.

Contact: SDI, 1700 S. El Camino Real, San Mateo, CA 94404, (415) 572-1200.

SEED Data Base Management System

Software. SEED is a unique Data Base Management System. It combines easy-to-use relational concepts and practical efficient CODASYL methods. This results in SEED as an easily used and highly effective DBMS. The unique features of SEED also make it an advanced. comprehensive and flexible system. The SEED product family consists of the Kernel, the core of the DBMS, HARVEST, the relational-like query language, BLOOM, a non-procedural report writer, VISTA, a screen-oriented applications development tool, GARDEN, the interactive Data Manipulation language and SPROUT, a batch processor for loading and unloading information. Further information detailing the components of the SEED Kernel are available by contacting our technical representative, Richard Smith.

Software Description: Manf = Most large scale and minicomputers, Type = Automated Data System, Mode = Combination, Appl = General Software Tool, Lang = FORTRAN & COBOL, Memory = 35K - 150KB.

Contact: IDBS, 2300 Walnut Street, Philadelphia, PA 19103, Mr. Richard Smith, Marketing Representative, (215) 568-2424.

Super-EPAT—Tape Library Management

Software. Super-EPAT is the most complete and usable tape library management system available for DOS/VSE, DOS/VS, and DOS users. Super—EPAT is a fully automated system providing complete control over every aspect of tape processing. The system uses an online disk data base to record the generation and contents of each tape in the installation. Only the correct tape generation is allowed for input, and only valid scratch volumes are used for output. Among some of the many features of the system are: Automatic volume recognition, increased tape drive availability, early drive release, comprehsive volume usage recording, multiple length tape support, multi-file volume and multi-volume file support, automatic control of tape scratching based on the number of prior generations retained, automatic labeling of unlabeled tapes, comprehensive reporting, control of off-site tape storage, tape processing audit trail, automated catalog recovery online catalog access, multi-GPU tape pooling, password protection, and standard job control. No modifications are made to the IBM supervisor or user programs, and the system requires no manual input.

Software Description: Manf = IBM 360, 370, 4300, System = DOS, DOS/VS, DOS/VSE, Type = Program, Mode = Combination, Appl = Support/Utility, Lang = Assembler, Memory = 0K-10K.

Contact: SDI, 1700 S. El Camino Real, San Mateo, CA 94404, (415) 572-1200.

TDS Synthetic Jobstream

Software. The TDS SYNTHETIC JOBSTREAM provides your Technical Support area and your Computer Operations personnel with a means to stress test your operating system in less than one hour. This enables you to verify your operating system after changes such as SYSGEN, PTF Application, Hardware Changes, Hardware Maintenance, Channel Reconfiguration, and any modifications to VSAM, ISAM, BDAM, and BPAM. The JOBSTREAM consists of 29 interdependent steps that initially obtain temporary data sets, generate unique test data that will pose "worst case" situations, load the data, insert, if applicable, and then unload the data comparing it to what was generated and loaded. Messages are produced if any error condition is encountered. The JOBSTREAM stresses your Assembler, Linkage Editor, IBM Utilities, Supervisor Service Macros, Sort, and numerous Access Methods. Examples of "worst case" situations are forcing a tape drive to read backwards, forcing the use of cylinder and independent overflow with ISAM, forcing CA and CI splits with VSAM, forcing your Sort Routine to sort the same data using two different routines while using two different region sizes, etc. Multiple copies may be run off JOBSTREAM to put a heavy load on your I/O Supervisor. The JOBSTREAM requires very little CPU time and is almost completely I/O bound. A thirty day trial period is available by contacting Trusco. The JOBSTREAM is delivered in source code only.

Software Description: Manf = IBM 370/303X, System = VS1, MVS, Type = Program, Mode = Batch, Appl = Support/Utility, Lang = Assembler, Memory = 50K, Disk = 33XX.

Contact: Trusco Data systems - 429, 250 Piedmont Avenue, NE, Atlanta, GA 30308, Mr. John K. Arnold, (404) 588-8487.

TDS Quick Compress with SCAN

Software. The TDS QUICK COMPRESS with SCAN is a high performance replacement for the COMPRESS-IN-PLACE function of IEBCOPY. It is designed to be very fast and very safe. Speed alone has justified the licensing of this product in a

majority of its installations. However, the COMPRESS performs extensive validity checking of Partitioned Data Sets and will not abend on minor errors such as overlapped data, directory out of sequence, invalid TTR's, etc. The COMPRESS reduces CPU consumption by 50-75%. Elapsed time is reduced 25-90%. Functions of the COMPRESS include 1) Compress; 2) Test, a read-only simulation of the compress function; 3) Reset (XXXXX), setting of a PDS to an empty and allocated status in one step while changing the number of directory blocks if desired, and: 4) INFO, for PDS statistics. The COMPRESS features full support of RPS devices using EXCP programming, requires no authorization, no modifications, and generates no ambiguous messages. In the event of PDS errors, the COMPRESS provides a SNAP dump routine and an internal trace procedure to identify the member in error and the problem encountered. The COMPRESS also includes a Front End Scan Module. The SCAN Module scans the VTOC of any number of disc packs and automatically generates compress JCL. This JCL can be routed to your internal reader for AUTO-COMPRESS or can be routed to a data set for your editing. Exclusion lists can be built to exclude production data sets, etc. The TDS QUICK COMPRESS with SCAN is delivered in object form and a trial version may be requested by calling Trusco.

Software Description: Manf = IBM 370/303X, System = OS, VS1, MVS, Type = Program, Mode = Combination, Appl = Support/Utility, Lang = Assembler, Memory = 100K, Disk = All RPS Devices.

Contact: Trusco Data systems - 429, 250 Piedmont Avenue, NE, Atlanta, GA 30308, John K. Arnold, (404) 588-8487.

Universal Communications Facility

Software. The Universal Communications Facility (IDMS/UCF) is a system that allows users to develop on-line applications using all of the facilities of IDMS-DC including dictionary integration, on-line generation, common DML language, and automatic editing, yet execute these programs from terminals which are controlled by some other host TP environment. Access to the database is very fast and efficient, because the programs execute in the same region as IDMS Central Version. Application development is TP-monitor dependent—all programs are developed using IDMS-DC facilities. UCF is fully integrated with IDMS-DC and consequently no conversion is required to upgrade to IDMS-DC UCF can be used with CICS, SHADOW-II, INTERCOMM, WESTI, TASK/MASTER, TSO, COMS, and other teleprocessing facilities.

Software Description: Manf = Most large scale computers, System = All OS and DOS/VS/VSE Systems, Type = System, Mode = Inter/Batch, Appl = Non-specific, Lang = COBOL, PL/1, Assembler.

Contact: Cullinane Database Systems, Inc., 400 Blue Hill Drive, Westwood, MA 02090, Ms. Linda Lucey (617) 329-7700, ext. 176.

WORD-11

Software. WORD-11 is a multi-user word processing system operating in a time-sharing environment. With WORD-11, the user can prepare a variety of documents such as letters, reports, contracts, and technical materials. Documents can be interactively created, edited, and printed. Advance WORD-11 features include flexible list processing with sort, merge, and arithmetic capabilities;ties; automatic footnoting and spelling error detection.

Software Description: Manf = DEC VAX 11/750, 11/780, Type = Program, Mode = Interactive, Appl = Bibliographic/Textual, Management/Business, and Word-Processing, Lang = Macro-11, Memory = 500KB, Term = DEC VT100, DEC VT52.

Contact: Data Processing Design, Inc., 181 West Orangethorpe, Suite F, Placentia, CA 92670, Mr. Eric Moothart, (714) 993-4160.

WORD-11

Software. WORD-11 is a multi-user word processing system operating in a time-sharing environment. With WORD-11, the user can prepare a variety of documents such as letters, reports, contracts, and technical materials. Documents can be interactively created, edited, and printed. Advance WORD-11 features include flexible list processing with sort, merge, and arithmetic capabilities; automatic footnoting, and spelling error detection.

Software Description: Manf = DEC PDP 11/24-11/70, System = RSTS/E, Type = Program, Mode = Interactive, Appl = Bibliographic/Textual, Management/Business, and Word-Processing, Lang = Macro-11 and Basic plus, Memory = 160KB, Term = DEC VT100, DEC VT52.

Contact: Data Processing Design, Inc., 181 West Orangethorpe, Suite F, Placentia, CA 92670, Mr. Eric Moothart, (714) 993-4160.

WORD-11

Software. WORD-11 is a multi-user word processing system operating in a time-sharing environment. With WORD-11, the user can prepare a variety of documents such as letters, reports, contracts, and technical materials. Documents can be interactively created, edited, and printed. Advance WORD-11 features include list processing with sort, merge, and arithmetic capabilities; automatic footnoting; and spelling error detection.

Software Description: Manf = DEC PDP 11/23-11/70, System = RSX-11M, RSX-11M+, Type = Program, Mode = Interactive, Appl = Bibliographic/Textual, Management/Business, and Word-Processing, Lang = Macro-11, Memory = 160KB, Term = DEC VT100, DEC VT52.

Contact: Data Processing Design, Inc., 181 West Orangethorpe, Suite F, Placentia, CA 92670, Mr. Eric Moothart, (714) 993-4160.

FSEC Catalog Order Form

This page may be used to order the Federal Software Exchange Catalog from:

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5285 Port Royal Road
Springfield, VA 22161

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_____Local government
_____Cost reimbursement contractor
_____Federally funded activity
_____None of the above

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For DTIC Users Only
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Contract Number _____
(last 6 characters only)

Treasury Agency Location Code
For Government Users
(who report on SF-224)
(8 digit)

Date _____

PURCHASER: Telephone: _____

Name _____

Organization _____

Address _____

City, State, ZIP _____

Attention: _____

SHIP TO:
(Enter if different from address at left)

Name _____

Organization _____

Address _____

City, State, ZIP _____

METHOD OF PAYMENT

- ☐ Charge my NTIS deposit account no. _____
- ☐ Purchase order no. _____
- ☐ Check enclosed for $ _____
- ☐ Charge to my: American Express ☐ Visa ☐ Master Charge ☐

Account no. _____

Card expiration date _____

Signature _____
(Required to validate order)

☐ Send me an application for an NTIS Deposit Account (NTIS-PR-33)

ORDERING MAGNETIC TAPE:
(check mode)

☐ 7 track ☐ 556bpi ☐ odd parity
☐ 800bpi ☐ even parity

☐ 9 track ☐ 800bpi ☐ 1600bpi ☐ 6250bpi (odd parity)

NTIS ORDER NUMBER	USER ROUTING CODE†††	QUANTITY			UNIT PRICE††	PRIORITY MAIL SERVICES†	TOTAL PRICE
		Magnetic Tape	Paper Copy	Micro-fiche			

† Priority Mail Services—**FOR PAPER COPY ORDERS ONLY** Add $3 per item for First Class Delivery in North America; Add $4 per item for Airmail Delivery outside North America.

†† ALL PRICES SUBJECT TO CHANGE

††† NTIS can label each item for routing within your organization. If you want this service, put your routing codes in this box (Limit 8 characters).

Enter Grand Total $

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NTIS®

National Technical Information Service
U.S. DEPARTMENT OF COMMERCE
Springfield, Va. 22161
(703) 487-4650 TELEX 89-9405

For DTIC Users Only
DTIC User Code _____
Contract Number _____
(last 6 characters only)

Treasury Agency Location Code
For Government Users
(who report on SF-224)
(8 digit)
☐☐ ☐☐ ☐☐☐☐

Date _____

PURCHASER: Telephone: _____

Name _____

Organization _____

Address _____

City, State, ZIP _____

Attention: _____

SHIP TO:
(Enter if different from address at left)

Name _____

Organization _____

Address _____

City, State, ZIP _____

METHOD OF PAYMENT

☐ Charge my NTIS deposit account no. _____
☐ Purchase order no. _____
☐ Check enclosed for $ _____
☐ Charge to my: American Express ☐ Visa ☐ Master Charge ☐

Account no. _____

Card expiration date _____

Signature _____
(Required to validate order)

☐ Send me an application for an NTIS Deposit Account (NTIS-PR-33)

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(check mode)

☐ 7 track ☐ 556bpi ☐ odd parity
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† Priority Mail Services—**FOR PAPER COPY ORDERS ONLY** Add $3 per item for First Class Delivery in North America; Add $4 per item for Airmail Delivery outside North America.

†† ALL PRICES SUBJECT TO CHANGE

††† NTIS can label each item for routing within your organization. If you want this service, put your routing codes in this box (Limit 8 characters).

Enter Grand Total $

FEDERAL INFORMATION PROCESSING STANDARD SOFTWARE SUMMARY

01. Summary date Yr.	Mo.	Day	02. Summary prepared by *(Name and Phone)*	03. Summary action: New ☐ Replacement ☐ Deletion ☐
			05. Software title	Previous Internal Software ID
04. Software date Yr.	Mo.	Day		
			06. Short title	07. Internal Software ID

08. Software type

- ☐ Automated Data System
- ☐ Computer Program
- ☐ Subroutine/Module

09. Processing mode

- ☐ Interactive
- ☐ Batch
- ☐ Combination

10. Application area

General		Specific
☐ Computer Systems Support/Utility	☐ Management/ Business	
☐ Scientific/Engineering	☐ Process Control	
☐ Bibliographic/Textual	☐ Other	

11. Submitting organization and address	12. Technical contact(s) and phone

13. Narrative

14. Keywords

15. Computer manuf'r and model	16. Computer operating system	17. Programing language(s)	18. Number of source program statements
19. Computer memory requirements	**20. Tape drives**	**21. Disk/Drum units**	**22. Terminals**

23. Other operational requirements

24. Software availability			25. Documentation availability		
Available ☐	Limited ☐	In-house only ☐	Available ☐	Inadequate ☐	In-house only ☐

26. FOR SUBMITTING ORGANIZATION USE

Standard Form 185
1974 July
U.S. Dept. of Commerce—NBS
(FIPS. Pub. 30)

INSTRUCTIONS

01. **Summary Date.** Enter date summary prepared. Use Year, Month, Day format: YYMMDD.

02. **Summary Prepared By.** Enter name and phone number (including area code) of individual who prepared this summary.

03. **Summary Action.** Mark the appropriate box for **new** summary, **replacement** summary or **deletion** of summary. If this software summary is a replacement, enter under "Previous Internal Software ID" the internal software identification as reported in item 07 of the original summary, and enter the new internal software identification in item 07 of this form; complete all other items as for a new summary. If a software summary is to be **deleted**, enter under "Previous Internal Software ID" the internal software identification as reported in item 07 of the original summary; complete only items 01, 02, 03 and 11 on this form.

04. **Software Date.** Enter date software was completed or last updated. Use Year, Month, Day format: YYMMDD.

05. **Software Title.** Make title as descriptive as possible.

06. **Short Title.** (Optional) Enter commonly used abbreviation or acronym which identifies the software.

07. **Internal Software ID.** Enter a unique identification number or code.

08. **Software Type.** Mark the appropriate box for an **Automated Data System** (set of computer programs), **Computer Program**, or **Subroutine/Module**, whichever best describes the software.

09. **Processing Mode.** Mark the appropriate box for an **Interactive**, **Batch**, or **Combination** mode, whichever best describes the software.

10. **Application Area.**
    General: Mark the appropriate box which best describes the general area of application from among:

Computer Systems Support/Utility	**Process Control**
Management/Business	**Bibliographic/Textual**
Scientific/Engineering	**Other**

    Specific: Specify the sub-area of application; e.g.: "COBOL optimizer" if the general area is "Computer Systems Support/Utility"; "Payroll" if the general area is "Management/Business"; etc. Elaborate here if the general area is "Other."

11. **Submitting Organization and Address.** Identify the organization responsible for the software as completely as possible, to the Branch or Division level, but including Agency, Department (Bureau/Administration), Service, Corporation, Commission, or Council. Fill in complete mailing address, including **mail code, street address**, city, **state**, and ZIP code.

12. **Technical Contact(s) and Phone:** Enter person(s) or office(s) to be contacted for technical information on subject matter and/or operational aspects of software. Include telephone area code. Provide organization name and mailing address, if different from that in item 11.

13. **Narrative.** Describe concisely the problem addressed and methods of solution. Include significant factors such as special operating system modifications, security concerns, relationships to other software, input and output media, virtual memory requirements, and unique hardware features. Cite references, if appropriate.

14. **Keywords.** List significant words or phrases which reflect the functions, applications and features of the software. Separate entries with semicolons.

15. **Computer Manufacturer and Model.** Identify mainframe computer(s) on which software is operational.

16. **Computer Operating System.** Enter name, number, and release under which software is operating. Identify enhancements in the Narrative (item 13).

17. **Programing Language(s).** Identify the language(s) in which the software is written, including version; e.g., ANSI COBOL, FORTRAN V, SIMSCRIPT II.5, SLEUTH II.

18. **Number of Source Program Statements.** Include statements in this software, separate macros, called subroutines, etc.

19. **Computer Memory Requirements.** Enter minimum internal memory necessary to execute software, exclusive of memory required for the operating system. Specify words, bytes, characters, etc., and number of bits per unit. Identify virtual memory requirements in the Narrative (item 13).

20. **Tape Drives.** Identify number needed to operate software. Specify, if critical, manufacturer, model, tracks, recording density, etc.

21. **Disk/Drum Units.** Identify number and size (in same units as "Memory"—item 19) needed to operate software. Specify, if critical, manufacturer, model, etc.

22. **Terminals.** Identify number of terminals required. Specify, if critical, type, speed, character set, screen/line size, etc.

23 **Other Operational Requirements.** Identify peripheral devices, support software, or related equipment not indicated above, e.g., optical character devices, facsimile, computer-output microfilm, graphic plotters.

24. **Software Availability.** Mark the appropriate box which best describes the software availability from among: **Available to the Public, Limited Availability** (e.g.: for government use only), and **For In-house Use Only.** If the software is "Available", include a mail or phone contact point, as well as the price and form in which the software is available, if possible.

25. **Documentation Availability.** Mark the appropriate box which best describes the documentation availability from among: **Available to the Public, Inadequate for Distribution,** and **For In-house Use Only.** If documentation is "Available", include a mail or phone contact point, as well as the price and form in which the documentation is available, if possible. If documentation is presently "Inadequate", show the expected availability date.

26. **For Submitting Organization Use.** This area is provided for the use of the organization submitting this summary. It may contain any information deemed useful for internal operation.

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